ESSENTIALS IN EDUCATION

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FOREWORD

The purpose of this book is to present to teachers and all persons interested in education a discussion of some of the fundamental factors in public education in the light of current educational practice. The point of view is distinctly practical. No panaceas are offered and no revolutions in current methods are proposed. While the form of statement may seem dogmatic in some instances, it is hoped that this is not the case to any greater extent than would be inevitable in presenting the convictions of the writer as an outgrowth of twenty-five years of public school work.

Many of the chapters are upon subjects which have been presented many times by the writer in talks and addresses to teachers and the general public. This accounts for the informal nature of many statements. It is hoped that the point of view here presented will be helpful to teachers and others interested in education in applying to the solution of present problems the conclusions obtained from a long administrative experience.

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THE AUTHOR

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CHAPTER I

TEACHING AS A PROFESSION

Choosing an occupation difficult.—The present complexity of society makes the choosing of an occupation more difficult than ever before. The division of labor and the high degree of specialization has greatly increased the number of occupations. Information in regard to these many lines of work is not always available so that the possibilities of a particular field may not be known. There is great need of reliable vocational information so that all these essential factors might be available.

In addition to the complexity of society there is the added difficulty of the uncertainty as to one's powers and tastes. It is often impossible to tell whether or not you would like a given kind of work until you try it. The testimony given by those who are already engaged in a certain occupation is not always reliable since people are prone to see the difficult and objectionable sides of their own calling.

Broadly speaking, there may be said to be a line of demarcation between business and the professions. In business life commercial success is the chief goal together with the power and standing which go with financial attainment. In the professions the idea of service to humanity is chiefly emphasized and the thought of personal gain is largely ignored.

Definition of profession.—A profession has been defined as an occupation that properly involves a liberal education or its equivalent and mental rather than manual labor; also any calling or occupation involving special mental attainments or special discipline as editing, acting, engineering, authorship.* This definition places emphasis upon the preparation and qualities needed in order to follow a profession. It implies special training and the development of intellectual qualities of a superior kind. The emphasis upon this point is significant because in the discussions about teaching as a profession the thought is usually directed toward the kind of work involved rather than the preparation and fitness of the worker. Teaching is a profession because it requires special preparation of an intellectual sort, and as the requirements for teaching continue to increase, the status of teaching as a profession will be correspondingly elevated.

*See *Standard Dictionary.*

Any occupation that is to be satisfactory must satisfy one's sense of values. It must seem to be so valuable that one can afford to spend his life in following it. Unless it have this characteristic of worthwhileness the occupation will be the merest drudgery.

Characteristics which occupation should possess. —Some of the elements which enter into the question of occupation are—first, adequate financial return. The income must be sufficient for a livelihood and for at least a slight margin besides. It is important that one's work should bring in enough to support one's self and family and also to accumulate a reserve for future needs. Unless the remuneration is sufficient to cover these real needs of life, one can not feel that the occupation is permanently satisfying.

The second element in the occupation is that it must furnish opportunity for sufficient recognition of one's ability. A certain amount of success is necessary to satisfy us that our powers are being helpfully employed.

Third, there must be a consciousness of service to the world. No one would long be satisfied to perform a piece of work which he felt was perfectly useless even though he were well paid for it. John Ruskin said in 1851: "In order that people may be happy in their work these three things are needed.

They must be fit for it; they must not do too much of it; and they must have a sense of success in it." This is as true to-day as it was when the words were spoken.

Nature of teaching as an occupation.—Let us examine some of the principal characteristics of the work of teaching in order to determine how far it fulfills the above requirements. The answer to this question will very largely determine the desirability of teaching as a profession.

One of the most distinctive features of teaching is that it places a teacher in the attitude of a leader and guide to minds less informed and less developed. This fact makes a strong appeal to many natures. It is an opportunity which should not be lightly regarded. It is a wonderful privilege to act as the light which illuminates the world for the youthful traveler and which accompanies him on his first excursions from the darkness of ignorance to the new world of truth and beauty.

No one can do the work of a true teacher without having a sympathy and a liking for children. The true teacher must like children and enjoy being with them and must enter into their interests and activities with true insight and friendly appreciation. If the companionship of children be not agreeable to you and if their concerns seem uninteresting and trivial, by all means seek some other vocation for you will not be happy in teaching.

The work of teaching possesses variety. Each new lesson brings new problems. The necessity of meeting the active minds of a group of children each day is a continual incentive to intellectual activity. While the routine of the schoolroom may sometimes seem like drudgery, the real work of teaching is constantly new and fresh. It furnishes a constant stimulus to the mind of the teacher and prevents stagnation and mental lethargy.

Furthermore teaching encourages inventiveness and initiative. It constantly invites to new efforts of approach to subject-matter and clearer methods of elucidation. No other kind of work affords greater variety than this.

And, finally, the work of teaching is idealistic because it deals with the never-ending search for truth and for the highest truth. It ever seeks to mold the unfolding mind in accordance with the finest ideals and to furnish the truest principles of conduct as a basis of all behavior.

There are numerous other characteristics of a teacher's work, but the above are sufficiently indicative of its nature to enable any one to determine whether he would be suited to work in this field. Any person who possesses the five qualities enumerated—intellectual leadership, love for children, appreciation of the variety of the work, delight in the use of initiative and the pursuit of the ideal—will enjoy the work of teaching and will probably

be successful in it; but lacking any one of these qualities, both enjoyment and success would be very doubtful.

Modern point of view.—As a corollary to the above characteristics of teaching, consider for a moment the modern point of view of the work of public education. The child study movement has changed the emphasis in teaching from the subject-matter to the child. Formerly the information which was important to the adult world was presented in limited quantities to children without much adaptation to their interests or capacity, but a truer understanding of the laws of mental growth has resulted in making the child the center of the educational process and in adapting to his needs all the materials and processes of education. The working out of this point of view is far from complete and the attempt to perfect the means and materials from the psychological point of view is a constant incentive to the true teacher.

In addition to the better understanding of child nature and its needs there has also been an awakening to the relationship of education and the sociological and civic requirements of a democracy. The child must not only perfect his own powers but he must perfect them to the end that society may be served thereby. The relating of educational processes to the needs of the world is one of the most

fundamental educational problems. In the solution of it the teacher may feel certain that a tremendous contribution is being made to the needs of the nation and the service of society. No field of work could be more vital and fundamental.

Financial aspects.—But what can be said of the material side of the work of teaching? The present wide-spread discussion of teachers' salaries has emphasized the financial aspects of teaching to a greater extent than ever before. This may have created some impression that teachers are less professional than formerly, but it should not be so considered. The advancing costs since the war have necessitated a readjustment of all wage and salary scales. Teachers' salaries have been notoriously low and it is high time that adjustments were made to a living basis. Until salaries are adequate they should be one of the principal subjects of discussion.

In general the public has been inclined to agree that teachers' salaries are too low and also that teachers are worthy of a good salary. The difficulties in obtaining adjustments have been largely those of adjusting the taxing machinery for the production of greater revenue.

Recent studies show that both maximum and minimum salaries have increased at least fifty per cent. and the tendency is still upward. The public should not allow this question to sink into the back-

ground until salaries are sufficiently large to obtain teachers of the highest qualifications. Public policy will not permit ruinous economy at this point. When the entire amount of money spent for instruction is compared with that spent for many unnecessary items, it is seen that we are not paying very dearly for education.

It is significant to note that the wide-spread agitation for better salaries for teachers has not lessened the professional spirit or devotion to their work. Those who are in touch with the teaching profession know that there is at the present time a greater spirit of service than ever before. True teachers have always been actuated by the highest motives and that is just as true to-day as it has been at any time. During the war teachers were anxious to do whatever was most serviceable. In most cases that meant remaining at their usual tasks. In some cases it meant entering government service, but now that the war is over there is a new appreciation of the importance of public education in the building of citizenship and teachers are feeling a new call to service.

Specialization in education.—Another characteristic of the work of teaching is that it is becoming more and more highly specialized. Just as the division of labor has resulted in specialization in industry, so it has in education. The work of teach-

ing has become subdivided until now all teachers are specialists. This has certain advantages in that it enables a teacher to perfect her technique more easily. It makes her more efficient in performing her specialty. But it also has the disadvantage that the teacher labors in a small portion of the field and does not have contact with the general problems of education. This has produced a certain unrest and has led some teachers to feel that they are being excluded from participation in educational administration. As a matter of fact the work of education needs to be coordinated and this can be done only by proper organization. It can not be done by reverting to the former state of society in which occupations were not so highly differentiated as at present.

Another aspect of the work of teaching is its relationship to the modern scientific movement in education. The attempt to apply scientific methods to pedagogy is in its inception. It has not yet reached the status of a complete science of education, but it has resulted in refining the instruments of teaching and in seeing a clear definition of the problems involved. Teachers should be open-minded with reference to these new methods and should inform themselves of the developments in this field and the applicability of the various means to their work. As the subject becomes more fully

worked out it will add to the effectiveness of the teacher's work and to her satisfaction in obtaining more definite results.

Another interesting aspect of the work of teaching is that modern education has become socialized to a very large extent: that is, children are being educated more and more by participation in various activities which develop them by experience. This has long been the philosophical ideal of education but it is only in modern times that it is being attained. Formerly the tendency was to educate children by instruction exclusively. It was a question of imparting knowledge by the teacher directly, but the modern school is a socialized school and it has produced a new day in education.

Rewards.—There are many rewards in the field of teaching. In the first place, it ministers to one's own intellectual growth, it makes continual study and advancement in scholarship possible. This prevents intellectual stagnation and early crystallization of ideas. It enables one to be a student continually and to feel each year that he advances in intellectual power. Besides this, it affords a pleasant social status. A teacher is a figure of importance in the community. She possesses influence and is regarded as a person of high standing. Also, the work of teaching is a work of service to mankind and it ministers to one's desire to serve largely. The

opportunity to influence the lives of future citizens is one to be envied and which undoubtedly in later years would be a great cause of gratification and pleasure.

Emerson says that, "He teaches who gives and he learns who receives." The opportunity to give of one's self for the enrichment of the lives of others is an opportunity for the highest and most inspiring service.

Disadvantages.—It is true there are disadvantages to this as to every profession. There is danger of a certain narrowness and pedantry; there is a more or less uncertain tenure; there is a limited financial return, but it is well to remember as Vice-President Coolidge has said, "The realities of life are not measured by dollars and cents, the skill of the physician, the divine eloquence of the clergyman, the courage of the soldier, that which we call character in all men, are not matters of hire and salary. No person was ever honored for what he received. Honor has been the reward for what he gave. Public acclaim and the ceremonious recognition paid to returning heroes are not on account of their government pay, but of the service and sacrifice they gave their country."

The spirit of the teacher.—The whole subject is well summarized in the following paragraph which is taken from a letter received by the writer from

an old friend who has had a long experience in the field of education. "In recalling the teachers of our youth why is it that after the lapse of time, comparatively few stand out as conspicuous in their influence on our mind or character. In seeking an explanation, do we not find it in the *spirit* of the teacher, a something that like the electric current is not seen but felt. All may have knowledge of their subject but few have the ability to transmit it in a way that appeals to the interest and understanding of the learner. When we find such spirit in Horace Mann or Mark Hopkins we establish institutions to impart it." This refers to the unconscious influence of the teacher which can not be analyzed or tabulated but which is the best single factor in a teacher's fitness for his work. The same thought has been attributed to Socrates in the following saying, "All my good is magnetic and I educate not by lessons but by going about my business."

OUTLINE OF THE CHAPTER

A. Choosing an occupation difficult.
   1. Complexity of society.
   2. Uncertainty of one's tastes.
   3. Characteristics of professional life.

B. Occupation must satisfy sense of values.
   1. Financial aspect.
   2. Sense of success.
   3. Ideal of service.

C. Nature of teaching as an occupation.

1. Qualities required of a successful teacher.
    a. Leadership.
    b. Sympathy.
    c. Variety.
    d. Initiative.
    e. Idealism.
2. Modern point of view.
3. Education for democracy.
4. Financial aspects.
    a. Teachers' salaries.
5. Specialization and division of labor.
6. The scientific movement.
7. Sociological considerations.

D. Rewards.
1. Self-development.
2. Honorable social status.
3. Opportunity for service.

E. Disadvantages.
1. Pedantry.
2. Uncertainty of tenure.
3. Small financial return.

F. The spirit of the teacher.

TOPICS FOR DISCUSSION

Is teaching a desirable profession? Why? Are the conditions improving in teaching? In what respects? What are the chief objections to the work of teaching? Are these objections more serious than those of other occupations? What characteristics of the work of teaching require special qualities on the part of the teacher? What are some of the rewards of teaching? Is a monetary reward more satisfying than a more intangible one? If you won a prize contest, would you prefer a medal or a cash prize?

CHAPTER II

THE ESSENTIAL QUALITIES OF A TEACHER

Importance of topic to teachers and others.—Consideration of the most necessary qualities which teachers should possess is of interest both to teachers and school officers. If these qualities can be definitely determined they serve as standards for teachers for self-cultivation. They may be considered the norm toward which teachers should strive. These fundamental characteristics are of concern to school officers because they show the things to be sought in the employment of teachers.

In considering this subject it is highly desirable not to indulge in a council of perfection and to make an exhaustive catalogue of all good qualities of character, for to do this would imply so great a degree of moral and spiritual perfection that one might well despair of measuring up to it. Of course, one can never possess too many good qualities whether he be engaged in teaching or in other work. Every element of strength is of value and service to a teacher.

Essential qualities only will be considered.—Instead of attempting to outline all the desirable qualities which enter into the making of the highest and best character, it will simplify our discussion if we attempt to limit the subject to those indispensable characteristics without which a teacher can not measure up to the ordinary standards of her profession. The following qualities represent the conviction of the writer as an outgrowth of twenty-five years' experience in public school work. Each is fundamental and necessary to success in teaching. While many characteristics might be added to this list, the qualities named represent the minimum essentials for a good teacher.

Professional spirit.—This primarily means that one be so actuated by a sense of service that he will live for his pupils and for the truth and not for selfish ends. This does not imply a mere sentimental altruism but rather a strong vigorous will to serve, to be used to the end that the life of the community may be improved and the cause of progress be subserved.

A professional spirit implies that one shall work without undue thought of monetary reward; that is, the compensation must not be the chief motive of one's service. Strictly speaking, the work of teaching is so valuable that it could not be recompensed in direct proportion to its value. Just as the physi-

cian who saves the life of his patient charges a nominal fee which is a mere honorarium and which does not at all represent the value of the service to the patient, so the teacher performs a function which can be recompensed only nominally.

A professional spirit also implies a right relationship toward all educational associates. It presupposes courtesy and kindness to one's fellow teachers and the absence of professional jealousy which would put selfish interests above devotion to the common welfare.

Sincerity.—Children have an almost uncanny intuition which enables them to perceive the real inner spirit of those with whom they deal. In dealing with children it is not so much what you know that counts as what you are. Unless a teacher be actuated by a sincere desire to minister to the highest good of her pupils, her work will be of little effect.

This quality also implies that a teacher has somewhat of an appreciation of life's real values and that incentives will be supplied which will develop in the pupils the highest qualities of manhood and womanhood.

Sympathetic insight.—The modern child study movement has shown that we must approach all teaching from the standpoint of the child. The aim should be not so much the inculcation of technical

knowledge but rather a training and development of the powers of the individual in order to make him of maximum service.

On the side of morals this quality would enable one to appeal to the best instincts in the nature of each pupil and to enlist the child's own powers in the cause of his cultivation.

Adequate scholarship.—Notwithstanding the fact that the imparting of information is not the exclusive function of the teacher, adequate academic attainment is necessary as a part of the teacher's equipment. Without a sufficient wealth of knowledge the teacher can not properly relate the truth which the child is studying to other subjects and other phases of truth, nor can the teacher inspire the child with a deep interest in pursuit of a subject if his own vision be limited. The making of scholars, not scholarship, is the ultimate goal of teaching.

Scholarship is also valuable in that it tends to keep the teacher in the learner's attitude and thus conduces to mental vitality and growth. If there ever was a time when scholarship in itself was considered sufficient preparation for teaching, that idea no longer prevails, but it is so important a factor that a certain amount of scholastic attainment has always been made a prerequisite of obtaining a teaching position.

The importance of scholarship and the contribu-

tion which the scholar may make to civilization is inspiringly set forth in the following quotation from Emerson's *The American Scholar.* "The office of the scholar is to cheer, to raise, and to guide men by showing them facts amidst appearances. He plies the slow, unhonored, and unpaid task of observation. Flamsteed and Herschel, in their glazed observatories, may catalogue the stars with the praise of all men, and, the results being splendid and useful, honor is sure. But he, in his private observatory, cataloguing obscure and nebulous stars of the human mind, which as yet no man has thought of as such,—watching days and months, sometimes, for a few facts; correcting still his old records,—must relinquish display and immediate fame. In the long period of his preparation, he must betray often an ignorance and shiftlessness in popular arts, incurring the disdain of the able who shoulder him aside. Long he must stammer in his speech; often forego the living for the dead. Worse yet, he must accept —how often!—poverty and solitude. For the ease and pleasure of treading the old road, accepting the fashions, the education, the religion of society, he takes the cross of making his own, and, of course, the self-accusation, the faint heart, the frequent uncertainty and loss of time, which are the nettles and tangling vines in the way of the self-relying and self-directed; and the state of virtual hostility in

which he seems to stand to society, and especially to educated society. For all this loss and scorn, what offset? He is to find consolation in exercising the highest functions of human nature. He is one who raises himself from private considerations, and breathes and lives on public and illustrious thoughts. He is the world's eye. He is the world's heart. He is to resist the vulgar prosperity that retrogrades ever to barbarism, by preserving and communicating heroic sentiments, noble biographies, melodious verse, and the conclusions of history. Whatsoever oracles the human heart, in all emergencies, in all solemn hours, has uttered as its commentary on the world of actions,—these he shall receive and impart. And whatsoever new verdict Reason from her inviolable seat pronounces on the passing men and events of to-day,—this he shall hear and promulgate."

Motivation.—The fifth essential quality is the ability to vitalize one's teaching: that is, to relate the facts taught to the life of the pupil on the one hand and to the life of the community on the other. Isolated facts acquired without reference to their usability do not constitute an education and do not serve in the development of mental power.

Furthermore, it is the setting up of these relationships which tends to develop judgment on the part of the pupil. This judgment is the result of a comparison of facts and the estimation of one thing in terms of another.

An interesting illustration of vitalized teaching was furnished the writer a few years ago when he heard two college graduates who had been out of college several years, discussing the question as to the most valuable course which they had taken while in college. Both agreed that it was a certain course in astronomy. This decision seemed peculiar since astronomy is not a subject which would ordinarily be considered either practical or especially interesting from the standpoint of practical affairs. Upon inquiry it was found that the professor of astronomy in this college was an exceptionally able man who succeeded in impressing upon the minds of his pupils not only the truths of astronomy, but the great truths of life, so that not only were their minds informed but their judgment was developed and principles of conduct were established.

While it would not be justifiable to draw from this incident the conclusion that the kind of subject-matter is not important if only it be taught in an interesting way, it does point to the fact that true teaching will enlighten the mind and inspire the ideals regardless of the subject-matter.

Unselfishness.—The sixth and last essential quality is self-effacement. This is characterized by Professor Palmer in his excellent essay as "a willingness to be forgotten." This spirit is implied in what has been said above under the head of professional

spirit. It implies the absence of all self-advertising and all exploitation of one's position for the purpose of self-aggrandizement. The true teacher will live for his pupils and the truth and will devote his entire thought and energy to a pursuit of these ideals. It is the office of the teacher to develop the qualities of his pupils to the point where they shall become self-reliant and self-determining and thus obviate the need of a teacher. This thought has been expressed in the saying that the true point of graduation is the vanishing point for the necessity of a teacher.

Of course, it is inevitable that the work of the true teacher will not be forgotten and that the contribution which she makes to the development of her pupils will enter into the fabric of their lives and will there be remembered with gratitude and affection. This is one of the splendid rewards of the teacher, but it is incidental and comes as a by-product and should by no means be set up as the aim of the teacher's work.

These six qualities are essential for a teacher:— professional spirit, sincerity, sympathetic insight, scholarship, ability to vitalize teaching, and self-effacement, and without any one of them the highest success in teaching can not be attained. These truths are summarized in the following quotation from Lord Broughman: "The great teacher's prog-

ress is not to be compared with anything like the march of the conqueror, but it leads to a far more brilliant triumph and to laurels more imperishable than the destroyer of his species, the scourge of the world, ever won. Each one of these great teachers of the world, possessing his soul in peace, performs his appointed course, awaits in patience the fulfillment of the promises, and, resting from his labors, bequeaths his memory to the generation whom his works have blessed, and sleeps under the humble but not inglorious epitaph, commemorating 'one in whom mankind lost a friend, and no man got rid of an enemy.' "

Assuming that the above discussion has covered the prerequisites for success in teaching, two further considerations demand our attention: namely, how can the teacher acquire these qualities; and, secondly, how is the teacher to be judged as to the possession of them.

Attainment of these qualities.—There have been many discussions as to whether teachers like poets must be born, not made. Probably it would be truer to say that they must be both born and made. The native temperament which predisposes one to a life of altruistic service is not a matter of formal training. It is a matter of one's nature, his native endowment of principles and ideals.

Granting this, it is then possible to add by formal

training the qualities of scholarship and the technique of teaching, but by far the most important factor in the teacher's development is self-cultivation. This involves a consciousness on the part of the teacher of the qualities to be attained and the definite processes of self-cultivation in order to acquire them.

The law of development in character is analogous to the law of physical development: namely, that power in a given line is developed by going through processes in that particular line, so that if qualities of character be set up as the objective, training can be obtained by going through processes in the various objectives. This is the most difficult kind of education because it involves a definite recognition of the ends to be obtained and the determination on the part of the individual to persevere in his course of training until his goal be reached.

This must be partly the meaning of the old saying that there is no royal road to learning. There is no way by which the results of cultivation may be obtained without the effort and determination of the individual himself; unless he be enlisted in the cause of his own culture, neither schools nor systems can furnish him with the desired results.

But let us assume that the teacher possess all of the desirable qualities above enumerated. How will this fact be evident? Generally speaking, character

is made known through action, and the possession of these qualities will be evidenced in the teacher's work in the class-room and in all his activities in relation to his associates.

This fact is one reason why successful experience is so often desired by school officials in employing teachers. Evidence of successful work is taken as the most conclusive proof of the possession of the necessary ability and qualifications.

Measurement of teacher's worth.—But it may be asked if the teacher be properly equipped for work and be the possessor of all the essential qualities of the successful teacher, how shall her service be evaluated? This question involves not only the matter of obtaining an appointment but the salary and the conditions of advancement. The present practise differs widely in these matters and there exists to-day every variety of plan from that of individual bargain at the time of employment to the purely automatic salary schedule with no differentiations based upon qualifications. The most successful plans combine the desirable features of both ideas and provide for a certain amount of automatic progress and also for recognition of superior qualifications and efficiency.

Broadly speaking, the effectiveness of a teacher's work is evidenced by the attainment of her pupils. This is shown by their mastery of the work in a

given grade and also by the development of the power to do the work of succeeding grades. This is probably the largest single item in estimating the teacher's accomplishment. In addition to this there is the factor of maintaining a relationship of helpful cooperation with parents and the community. This result can be judged by the general reputation of the teacher as well as the testimony of parents and associates. The teacher's work can also be estimated by supervisors, superintendents and special directors since these officers are especially prepared along the lines of special subjects and departments. Such evaluation or rating of teachers should be done in accordance with well defined standards with which the teacher is familiar and the teacher should be informed not only of the ranking but also of the principles upon which the ranking is based. This subject is discussed more fully in Chapter IX to which the reader is referred for further details.

OUTLINE OF THE CHAPTER

A. Importance of topic.
B. All good qualities desirable, but following are indispensable.
   1. Professional spirit.
   2. Sincerity.
   3. Sympathetic insight.
   4. Adequate scholarship.
   5. Ability to vitalize teaching.
   6. Unselfishness.

C. Attainment of these qualities.
D. Measurement of teacher's worth.

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TOPICS FOR DISCUSSION

What do you consider the most important quality for a teacher to possess? Can this be cultivated and acquired? Describe the best teacher you ever had. What qualities made this teacher your favorite? To what extent does success for the pupil depend upon liking the teacher? Is the "merit" system of rating teachers successful? Give an example. What qualities should be considered in rating or marking teachers? Should the teacher's salary and promotion depend upon her rating?

CHAPTER III

SCHOOL DISCIPLINE

Good discipline is essential to success.—Discipline lies at the basis of the teacher's success or failure. It rarely happens that a teacher fails in her work on account of lack of sufficient scholarship. In almost every case failure has been due to a lack of ability to manage or to govern. Therefore, from the teacher's standpoint, this is one of the fundamental topics.

Failure is often due to unreasonable requirements.—Why do teachers fail in dealing with this question? In the first place, they usually fail to set up rational standards. The rules of many schools are artificial. They are not the same rules of conduct as would be applicable outside of the school. They are not like the requirements of life itself, and hence pupils often feel that the requirements are purely arbitrary. Frequently the pupils do not see that there is anything intrinsic in the rightness of a rule. Therefore, the best requirements for school conduct are those growing directly out of school

situations. The fact that children are associated in group life gives rise to the necessity for regulation. In so far as the necessities of the case require, children can usually be shown and convinced of the importance and necessity of rules of conduct.

Experienced teachers usually feel that the best kind of school control is that which comes as a by-product of the regular work or activity of the schoolroom. As long as conduct itself is the focus of attention, pupils are apt to have a self-conscious and strained attitude toward it. But if the work which they are doing can be the object of their thought, matters of conduct will fall into their proper place in relation to it.

A number of experienced teachers were once asked as to their chief method for securing results in discipline, and a great many of them said they depended upon hard work. In other words, it is a case of keeping the pupils so busy in helpful ways that the matter of conduct tends to take care of itself. In so far as the children can be made to feel that the standards are rational, that the authority of the school is not arbitrary but that it is merely reflecting the necessities of group life and group action, a correct basis for proper behavior is being set up. It is very important that the child should feel that the consequences of his actions are the results of what he himself does, rather than the

results of authority imposed from above or from without.

Teachers should be impersonal.—The second reason for failure in discipline is a wrong attitude on the part of the teacher. Often the teacher takes a personal attitude rather than a judicial attitude toward the issues involved. So long as the teacher feels that the conduct of the child is a personal affront to herself, so long will she be in an unfavorable position to deal with the question.

In a court room a number of years ago a prisoner who had been convicted of burglary was sentenced to fourteen years at hard labor in the penitentiary. After the sentence had been pronounced by the judge, the prisoner broke out into violent cursing against the judge, the jury, the court-house in which the trial was held, the sheriff who had him in charge and the community in which the crime had been committed. It was a very unexpected outburst, and of course a great surprise to everybody in the court. At once every eye was fixed on the judge. All wondered what he would do. What cognizance would he take of that display of anger and violence? He looked calmly out of the window, and paid no attention whatever; he did not indicate that he even heard what was said, and he added nothing to what had been said; he took no cognizance of the act, and soon the sheriff

took the prisoner out and disposed of him, and the judge called the next case.

Why was the incident ignored? Surely an offense had been committed there. Surely the court had ample authority to deal with that offense. Perhaps the judge felt that he was merely administering the law of the community in reference to the culprit. He was the judge as between the offender and the law. Any personal feelings on the part of the prisoner toward himself would not need to enter into the case in the slightest degree.

To a certain extent, the teacher occupies a judicial position in administering school requirements. The real issue should always be between the offender and the laws of the group, rather than between the offender and the judge.

In recommending this judicial attitude on the part of the teacher, no mere aloofness and lack of sympathy and interest in the pupils and in their welfare are advocated. Rather, emphasis is placed upon a certain impersonal quality in the administration of justice.

Teachers frequently lack poise and self-control.—A third point of failure is one which in some respects is at the root of the whole matter, and that is a lack of self-control on the part of the teacher. It is well known that you must first be in command of yourself before you are in a position to direct and con-

trol others. "He that ruleth his own spirit is better than the mighty." But so many of the school situations seem to be a direct temptation to the teacher to lose poise and self-control.

In a city high school one afternoon when the session was just about to begin, one of the teachers who was in charge of a large study hall having about three hundred fifty pupils in it, came into the principal's office, said the room was in a turmoil and that she didn't know what to do. She was an experienced teacher, and a very capable one, and had never before had such a situation arise.

When the principal walked into the study hall, the entire room was in a condition of disorder: the children were stamping their feet; they were whistling, yelling, pounding their desks and producing a condition of complete pandemonium. What was to be done? The principal took his place on the platform, stood by the desk and watched those boys and girls. He said nothing. He merely waited while they kept up their demonstration, and they continued it for a long time.

But at length the excitement subsided and the room became quiet. Then he calmly asked the pupils what was the trouble. Some one replied that it had started by a dog coming into the room and somebody calling or whistling to the dog. Using that as a text, he gave them a little lesson

in self-control. He showed them that what had happened there was not a reflection upon the teacher, but that it was simply an evidence of the fact that they could not control themselves in the presence of anything as exciting as a dog. He tried to present a sensible point of view regarding the question and show them that the whole difficulty was their own lack of self-control.

Some weeks later a visitor in that room saw a dog lying upon the platform asleep in a patch of sunshine, and as the spot moved across the stage, he followed it, and continued to lie in the spot of sunshine. The pupils watched with amusement in a certain sense, but it didn't disturb them at all, and the visitor commented on the remarkable good sense and friendliness which they showed toward a situation that had formerly caused a serious disturbance.

Another school principal had this experience. One afternoon, on coming back from lunch, he noticed that some of the pupils had decorated the desk in the assembly room with a row of apples, bananas, cakes and other articles of food. He took charge of the room, busied himself about the desk, and the children seemed secretly much amused by the decorations that had been placed there. He, however, paid no attention whatever to them. Soon they began watching the expression on the faces of the children who came into the room and their

looks of surprise became a matter of considerable amusement. After the roll had been taken and they were about to be sent to their classes, the principal said to them rather blandly that he noticed that some one had left some articles of food on the desk and asked if it disturbed any one. No one would admit that it did, of course. "Now," he said, "if this disturbs any one, I shall have the janitor take it out. If not, we shall leave it where it is, as it is not bothering me in the least." So he rang the bell and the children marched out of the room, and as they came by the desk, it was just high enough so that this row of eatables was on a direct line with their noses, but they marched right by like a line of soldiers, without so much as casting an eye in the direction of the food.

Such incidents indicate that many of the things which happen in school are a mere attempt on the part of the boys and girls to startle the teacher, or to tempt her out of her poise and balance. Children are human, and they like to tease,—but only those who can be teased. As soon as children find out that their provocative measures do not disconcert the teacher, they cease to attempt them. It is difficult to stand in the presence of forty or fifty children and maintain your composure in the face of an embarrassing or distressing situation, but it will do more to generate a spirit and a power of self-control

in the children themselves than any other single factor.

"He who has patience can have what he will."—A fourth point of failure is a lack of sufficient patience. Teachers are proverbially patient, but so often they feel that if a child has been corrected for a certain offense once or twice it ought not to be necessary to mention the same thing again.

Is it not true, however, that moral growth, like any growth, is very slow? If you are training a plant or a vine to follow a trellis, you may have to place it many times in the way you wish it to grow. We must exhibit this same patience with children, even though we expect their own intelligence to cooperate with ours in producing the result which is desired.

Discipline should promote character development.—The fifth point is a lack of the realization of the true purpose of school discipline. Too often we think of it in narrow terms as being merely the necessity of keeping order or of producing conditions in the school which will make helpful work possible, but there is a deeper purpose. The true purpose of school discipline is to produce true, high-minded, self-governing men and women. In other words, there is a fundamental life purpose in this subject, and everything that we do should be tested and tried in the light of this life purpose.

Confidence in pupils is a strong incentive.—The sixth point is a wrong motivation on the part of the teacher in looking on the children with suspicion, or with a lack of faith, instead of with trust. The strongest appeal that can be made to any of us is to have confidence placed in us by any one whom we respect. That appeals to all of the manhood or womanhood there is in any human heart. Judge Ben Lindsey, of the Denver Juvenile Court, was once asked how he could send the boys whom he had sentenced to the reformatory from his court room in Denver to the institution eighty or ninety miles distant without any member of his court accompanying them. He replied, "If you speak to the heart, man becomes suddenly virtuous. I speak to their hearts, that is how I do it." It is not always that we have the insight and the genius to reach the hearts of our boys and girls, but it is a power to be coveted.

Some one has called attention to the dual nature of human beings—that we possess two opposite sets of characteristics. If appealed to on one side, we are selfish, ungenerous, quarrelsome, spiteful and illiberal. If appealed to on the other side, we show the opposite of these qualities. Human nature has been likened to a team composed of a good little willing pony and a balky little brute of a donkey. The problem of the teacher is to address herself

to the positive qualities, the generous side of the child,—to become the ally of his virtue. It may seem necessary to beat the donkey over the back, but you will only make him balky. He will pull backward. It is necessary to encourage and to become the partner of the child's better self. Help him to help himself, in short. "Be the kinsman of his virtue," as Emerson puts it.

Proper penalties promote good discipline.—The seventh point is the failure to use the right means, that is, just penalties, penalties which shall be felt to be suited to the crime. The punishment should fit the crime. In general, punishments have become more scientific and more humane than they were formerly. That is true not only in school, it is true in society in general. We now have a constructive view of this question of punishment, not merely a negative or a retributive idea. Punishment has its just place in the scheme of school discipline, because there are real and genuine offenses, and where there are such, there should be punishment.

Spencer pointed out the analogy between the consequences of our acts in the natural world, and the results of our acts in the moral world, and he made that the principle upon which he would base all social punishments. He said that if you violate a natural law, such as putting your hand in the fire, or if you violate the law of gravitation, you suffer

the consequences; there is no spirit of revenge on the part of nature, but you have broken one of her laws. The consequence follows "without haste, but without remorse." It is difficult to carry out that analogy in school punishments, because so often it is impossible to find what is the logical or the natural penalty to suit a certain offense.

Repeated small offenses are very trying.—Probably the most annoying and the most difficult case of discipline in school life is the chronic small offender—the boy who is always doing something, but never doing very much. The chronic small offender—what shall we do with him? He must be dealt with in such a way that you can accumulate his offenses—pile them up—that is all. That can be done by keeping a written record of his misdeeds. Sometimes it is desirable to have the boy himself do it.

A superintendent once had a boy reported to him forty times in four months for minor offenses. In every case he secured an admission of guilt and a promise of improvement, and made a record of it.

Shortly after that, he was reported to the office for a rather serious offense, so the superintendent told him to take his books, leave the school and not come back unless sent for. The boy's father appealed the matter to the Board of Education, and when the hearing was held, the superintendent pre-

sented the definite record of the offenses, and was able to show that the school had done its full duty by the boy. The result was that school discipline was upheld and the boy excluded. If the case had been tried on the last offense only, or on a vague set of charges, it would doubtless have resulted quite otherwise.

"You can not indict a whole nation."—A second type of offense that is exceedingly difficult to manage is the school or group offense, where a large number of children are involved in the same misdemeanor. This is one of the most trying experiences with which a teacher can be confronted. The way to deal with it is to follow an old adage, "Divide and conquer." The following illustration shows such a case and the way to deal with it.

In an otherwise excellent high school of a thousand pupils it had been the custom for twenty years to initiate the freshman class with certain ordeals which often reached the extreme of physical violence. This practise was participated in by former students and alumni, and was one of the established customs of the school. It had reached such proportions that the principal made up his mind he could tolerate it no longer, so he solved the problem of abolishing it in the following manner.

The boys of the senior class were called together and the desirability of abolishing the custom pre-

sented to them. They agreed that it would be better for the school if the hazing were discontinued. They all signed a voluntary agreement that they would not participate in it thereafter. In the same way, the other classes were induced to abandon the practise, except that in the second- and first-year classes there were a few boys who did not wish to agree. These were allowed to remain out of the agreement at first, but were later called in one by one and persuaded to agree. The result was that the customary initiation of freshmen was abolished and the school was not troubled further with it.

There is a third device which is helpful in the case of a moral offense. You do not have a great many serious moral offenses, but in such cases the principle of probation and parole is very helpful. I have often paroled a boy to some teacher of his own selection and allowed the teacher to go on his bond, and guarantee the good behavior of that boy. The very fact that somebody will defend him places him in a condition of obligation which very few boys will violate. This is a device adapted from the juvenile court which can be applied in the above mentioned class of cases with good effect.

There is a fourth class of cases—direct insubordination. There are not many of these, but wherever positive lawlessness is met with, there is not very much to be done except to separate the defiant

pupil from the institution. That is not so much a solution as it is a protection; however, the school is justified in resorting to this means of protection, in extreme cases, just as is society itself. Such means should be used only as a last resort.

Corporal punishment is not effective with adolescents.—What place has corporal punishment in the system of school discipline? Prior to the adolescent age, so long as a child has not distinguished between himself and his body, corporal punishment has a legitimate place, if properly administered. After the adolescent period, when the child is conscious of himself as distinct from his body, it does no good, but is positively injurious. Hence the best rule is never to use corporal punishment in the case of an adolescent pupil.

The limitations to be placed upon corporal punishment are those which are placed by the rules of the best schools: namely, that the discipline should be such as would be administered by a kind and judicious parent under similar circumstances. The main thing to remember is not to inflict corporal punishment in a spirit of anger or revenge or retaliation, or in a spirit of vindicating your own authority—your own sense of outraged dignity.

The whole subject is well summarized in the following statement attributed to Socrates:

"But I think that young men who exercise their

understanding, and expect to become capable of teaching their fellowmen what is for their interests grow by no means addicted to violence, knowing that on violence attend enmity and danger, but that by persuasion the same results are attained without peril and with good will; for those who are compelled by us, hate us as if despoiled of something, while those who are persuaded by us love us as if they had received a favor.

"It is not the part, therefore, of those who cultivate the intellect to use violence, for to adopt such a course belongs to those who possess brute force without intellect. Besides, he who would use force has need of no small number of allies, but he who can succeed with persuasion alone, has need of none; for though left alone, he will still think himself able to persuade."

OUTLINE OF THE CHAPTER

A. Importance of discipline.
B. Why teachers fail.
    1. Lack rational standards.
        a. Authority should not be arbitrary.
        b. Punishment should fit crime.
        c. Cause and effect.
    2. Lack judicial attitude.
    3. Lack self-control.
    4. Lack patience.
    5. Do not realize true purpose.
    6. Show suspicion instead of trust.

7. Do not use right means.

C. Methods for various cases.
   1. Chronic small offender.
   2. Group offense.
   3. Moral offense.
   4. Insubordination.

D. Corporal punishment.

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Bennett—*School Efficiency,* Chaps. XXIV, XXV, XXVI, XXXI.

Betts—*Class-Room Method and Management,* Chaps. V, XXI, XXII.

Cronson—*Pupil Self-Government.*

Dewey—*Schools of Tomorrow,* Chap. XI.

O'Shea—*Everyday Problems in Teaching,* Chaps. I, II.

TOPICS FOR DISCUSSION

Describe the most difficult case of school discipline you know of. How was it dealt with? Could this treatment of it have been improved? What is the effect of punishing an entire group of pupils for the misdeed of one or two who may be unknown? How would you discipline boys who broke into the school building and damaged school property? What would be the effect upon a school if the teacher began the term with the challenge: "If you wish to find out who is running this school, start some trouble"? Do you know a teacher who failed in discipline? What were the reasons for failure? Are modern methods of discipline more efficient than those of former years? In what way is school discipline related to conduct outside of school? Do you believe in corporal punishment? Give reasons.

CHAPTER IV

METHODS OF TEACHING

The teacher is more an artist than an artisan.—Teaching is an art, and as an art it has its own principles and its own technique. It is important to remember that the teacher is not an artisan; and while teachers may sometimes feel that they are forced to become more or less mechanical by the restrictions of the course of study, the limited hours of the school program and the numbers of children with which they have to deal, yet the work is individual and creative. The teacher is not a taskmaster, but a partner in the enterprise.

The work of teaching is like that of the architect because while there are limitations imposed by the conditions under which the work is done, nevertheless, the teacher must plan the instruction for each child and devise the means of making the work effective.

Methods depend on the aims of education.—Method is merely a way of doing something. Therefore, all method presupposes a purpose.

Obviously, it is impossible to divorce the question of method from the question of aim. What are the aims of education?

Education is concerned with two kinds of aims —the ultimate and the immediate. There is no general agreement on this subject among the writers and educational thinkers, and the reason it is so hard to agree is that fundamentally the object of education is the same as the object of life. Hence, in order to say what education is for, it must first be decided what life is for. At once, you see, we are confronted with a very profound question. What are the absolute values of life in the philosophical sense?

The ultimate aim is service to the world.— Society agrees that there are certain absolute values; things that are of worth in themselves apart from our need of them, or apart from our wish for them. There are certain abstractions for which every one would lay down his life instantly, yielding himself to an ideal of the value of which he should feel no question. Such ideals are progress, service to mankind, justice and human welfare. These point to the social needs of the world and indicate that education must fit the individual to perform well his part in serving them. Effective social service is the ultimate aim of education.

The immediate aim of education is the develop-

ing of the child in knowledge, in skill and in his emotions. School work is planned primarily to subserve this purpose. This points to the use of certain materials and methods.

The materials must include the three elements named: knowledge, skill and ideals. How this can be done is discussed in Chapter VI.

The method of education should be psychological.—The aim and materials of education having been determined, how is the teacher to proceed? What methods shall be used to accomplish the predetermined results? The characteristic answer of modern pedagogy to this question is that the method shall be based on the way the mind of the child acts, rather than on the logical divisions of the subject-matter studied. It is a truism to say that child study has changed the entire point of view of all education. It has not been many years since the material of the adult world of science, history, literature and mathematics was arranged in a formal, logical order, and children were required to "learn their lessons" whether or not they could understand them.

The New England primer was one of the earliest examples of this. It consisted of selections from the Scriptures, without much attempt to adapt them to the comprehension of the children.

The alphabet method of teaching reading was

another case in which the logical divisions of the subject were considered rather than the mind of the child. We now know that words and sentences stand for ideas and are perceived as wholes, and we utilize this fact in teaching reading. A remarkable improvement in the results of the teaching has come from this change in method.

Arithmetic teaching has been dominated by the idea of a logical method. The attempt has been to start with unity or one as a basic conception and build up the entire science of mathematics from it. But we are by no means sure that the child perceives in this way. We must develop a better psychological approach.

In short, the modern educational world has the child for its center, and it seeks to afford him not only the needful subject-matter but the most economical and effective ways of mastering it.

The principle of apperception.—One of the psychological principles which is most important in pedagogy is that of apperception. This means that the ideas already present in the mind determine its reaction to new ideas. Professor William James puts it in a very interesting way. He says: "Every impression that comes in from without no sooner enters our consciousness than it is drafted off in some direction or other, making connection with the other materials already there. It is the fate of every

impression thus to fall into the mind pre-occupied with certain ideas and interests, and by these it is taken in."

Many examples of this principle will occur to every teacher. Emerson says that if one is intellectually bankrupt, it does no good to go to centers of learning or to parts of the Old World where great accomplishments have been brought about by men of former generations. He says it is a case of carrying ruins to ruins; what you take with you is the important thing as well as what you see there.

Another example of apperception is the response of men of different occupations to the same situation. Suppose three men are walking through a forest: one an artist, another a poet and another a lumber dealer. The painter would see the lights and shadows, the delicate tracery of leaves and branches, backgrounds and other technical elements. The poet would hear the birds in the trees' branches, and see in the scene before him the symbolic meaning which nature has for her votaries. It would speak to him a varied language. The lumberman undoubtedly would note the kinds of trees, their value in the trade for various purposes, and he would probably make some estimate of the number of thousands of board feet in a given portion of the woods. In other words, each would see that for which he was equipped, for which he was prepared.

This principle is all-important. One writer has said that nine-tenths of all teaching exemplifies either the use or the abuse of the principle of apperception. You can readily see that in a room of forty children the same stimuli will not produce the same reactions, the same growth. Hence, instruction must be adapted to the individual so that he will have suitable preparation for the understanding and perception of that which he is to learn.

In the course of study in arithmetic of a large city there appears the suggestion that it would be well for the first-grade teacher to find out what knowledge of numbers the children have when they first come to school. That is a very sensible suggestion. Before beginning the work of instruction with any class, the apperceptive basis of the pupils should be inquired into. The teacher who is aware of the necessity for that kind of inquiry will be a better teacher than one who bases the work on considerations of subject-matter alone.

The principle of interest.—A second psychological principle is the principle of interest. Interest is the desire or tendency to devote one's attention to a subject. Therefore, the more interesting a subject is, or is made, the greater the attention which will be given it.

The chief problem in teaching is from what the interest shall be derived. The best teaching uses

interests that are inherent in the subject rather than those that are artificial. Sometimes artifical interests are the only ones available, but whenever possible they should be avoided.

A good many teachers have confused the idea of interest with the thought that it is designed to make everything easy or pleasant for children; that is, that children shall not be required to do anything they don't wish to do. This is a false application of the principle. As a matter of fact, many things that are exceedingly hard are very interesting. You will often find a boy who will work overtime at something that looks pretty strenuous to his teacher or parent, such as some of his games and sports, football and skating, or some favorite pursuit like electricity or nature study.

Good teaching, therefore, is not based on what is sometimes called soft pedagogy. Things should not be required in a schoolroom either because they are easy or merely because they are hard. If the interest attaching to a subject be intrinsic, the question of difficulty will take care of itself.

Another danger in connection with the subject of interest is that we sometimes overestimate children's interests in abstract thinking. Young children, as a rule, do not understand and are not interested in abstractions. Modern methods favor objective materials for instructional use, especially

for the introduction of new subjects, and at all times for illustrative purposes.

The principle of individual differences.—A third principle of psychology is the principle of individual differences. This is not a new idea at all. We have always known that children were not all alike, either physically or mentally. Classes in school have always shown marked differences, and teachers have always recognized that fact. In spite of the fact that schools have sometimes been accused of trying to produce a dead level of uniformity because the class method of instruction is used, teachers have always realized that the children did not all get the same thing out of what was presented. It is so in nature. It has been said that no two trees even in the same species are exactly alike. A field of corn which has been produced under identical conditions of sunlight, soil, moisture, heat and cold will not have ears of corn that are all alike. It is a beneficent provision of nature that human beings do react differently to the same stimuli. Hence, when a group of forty pupils conforms to a set program of work, the same number of hours, the same course of study, the same text-books, etc., there need be no fear that these forty children will all be alike intellectually. This subject of variability and its nature and extent is so important that an entire later chapter will be devoted to it.

The principle of attention.—Another important principle is that of attention. The mind works by focusing itself upon that which it seeks. It becomes sharper by concentration. Attention is voluntary to a large extent and can be fixed upon a subject consciously. Attention should be obtained by having the work interesting. The teacher who is obliged to ask for attention constantly will not obtain it so readily nor will the work be so effective as when the attention is obtained by the natural method of presenting the subject in such a way as to secure and hold the minds of the pupils.

The principle of association.—A fifth principle is the principle of association. Briefly stated, the law of association is, present together the ideas which you wish to be together. The mind tends to associate with each other ideas and feelings which it receives together. The laws of teaching derived from this principle of association have not always been a true interpretation of it. They are very much better than they used to be. Strictly speaking, I suppose keeping a child after school is a violation of the laws of association, unless you wish to have him feel that the school is an undesirable place to be. In my day, we used to have to read the Bible for punishment, and children in that day associated the Bible with everything wrong and horrid they ever did.

It is possible, of course, to over-emphasize or over-estimate the importance of this law of association, and yet it is a very important principle. If you have had a tragic or a happy experience, is it not true that some trivial incident may bring back to you the whole scene? I am sure that we are all conscious of such incidents in our lives. There are certain odors, certain sounds, that remind us of scenes that are either joyous or the opposite. In the experience of life, these associations come to us according to the exigencies of experience, and they can not be controlled; but in the schoolroom, it is possible to control them to a great extent, and to set up desirable and helpful associations in the mind of the pupil.

The principle of reasoning.—There is the sixth principle of reasoning which need be mentioned only briefly. Reasoning is the process of judging facts. One author* says "it is that form of thought in which mind evolves relations among judgments." It implies a deliberate relating and evaluating of ideas. Under this head of reasoning are the two well-known forms, induction and deduction. These should be part of the working equipment of every teacher. The usual definition of induction is reasoning from particulars to the general; and of deduc-

*E. L. Thorndike, *Principles of Teaching.*

tion, reasoning from a general principle to specific or particular conclusions.

In applying inductive-deductive reasoning, the recitation has been outlined in five formal steps. These are: first, preparation; second, presentation; third, comparison and abstraction; fourth, generalization; and fifth, application. The first four steps are inductive, and the fifth is deductive. Strictly speaking, in the psychological sense, only the third step is inductive, but in a broader sense, it is all right to say that the first four are inductive.

No one exercise, no one recitation, will probably ever be carried out exactly according to either the inductive or deductive process, or a combination of both. The chief value of these principles is not that they shall be applied in their philosophical form, but that they shall be used to guide the teacher in the organization and presentation of material whenever it would be helpful to do so. It is unnecessary to apply either of these principles uniformly, because to do so would do some violence to the subject-matter or to the child.

The training of the will.—The seventh principle has to do with the training of the will. This is exceedingly important. Some one has said that the important thing to ask about a pupil when the public schools are through with him is not what does he know, nor even what can he do, but what will

he do. In other words, not even knowledge, the possession of knowledge, and not even the knowledge of right and wrong alone is the supremely important thing, but rather the attitude of the pupil toward those facts—the characteristic will attitude of the child. Those are the vital factors in his eduation, because they are the characteristics that will carry over into life and determine his conduct. The training should be such as to make duty rather than whim or self-will the controlling motive of the child. This can be done by example, by formal instruction in correct principles, and by the use of school incidents.

The training of the emotions.—The work of education should develop the right emotional reactions by encouraging and rewarding desirable feelings. The feeling of satisfaction which comes from work well done; of self-respect which comes from discharging a responsibility; of pleasure in recognition by one's associates, these, and many others can be provided for in the well ordered school. In like manner, objectionable and harmful feelings can be eliminated to a great extent. Good teaching and good management will ever keep both these ends in view.

A very important principle to be considered in this connection is that our feelings grow in harmony with our conduct. For example, consider the teach-

ing of patriotism. Patriotism is not just a feeling, but it is a feeling which grows out of certain acts and experiences. If the child can be given certain things to do which he knows are for the common good; if he can be a participant in vital enterprises that concern his country; then any feeling that results will be a feeling of patriotism. So often we think that patriotism is the desire to be useful to one's country. This is true, but if it stops there, the deepest patriotism does not result.

As another example, suppose that a person lacks a good quality in his life—such as, generosity. How can you cultivate the spirit of generosity? Not just by wishing to be generous, but if you will perform some generous act—serve the needy, visit the sick and afflicted—then you will realize the meaning of true kindness. In other words, the feeling will follow and tend to conform to the action. So often we reverse this whole process and take the impulse or the conviction or the desire, for the thing itself. That our feelings grow in harmony with our conduct, is a principle which furnishes the secret of much very valuable training.

Special methods of the recitation.—I shall omit here all discussion of special methods of the recitation; they are to be found in the references at the end of the chapter. These special methods are not altogether the result of psychological discovery;

many of them were worked out empirically before we had a science of psychology; the telling method, and the question and answer method—these things are intrinsic in the very nature of our task, and hence many of the plans which have been worked out empirically are found to be in accord with psychological principles, but not derived from them. A study of special methods will show the necessary variations in method due to the character of the subject-matter studied. A full discussion of this question is impossible in this book, but teachers will find a study of the subject most profitable.

OUTLINE OF THE CHAPTER

A. Teaching is an art.
B. Method presupposes aim.
   1. Ultimate aim.
   2. Immediate aim.
C. Method based on child psychology.
   1. Reading.
   2. Arithmetic.
D. Principles of psychology applicable to teaching.
   1. Apperception.
   2. Interest.
   3. Individual differences.
   4. Attention.
   5. Association.
   6. Reasoning.
   7. Will.
   8. Emotion.

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Betts—*Class-Room Method and Management.*
Earhart—*Types of Teaching.*
Thorndike—*Principles of Teaching.*

TOPICS FOR DISCUSSION

In what ways has psychology modified methods of teaching? Is psychology an exact science? What is its chief contribution to pedagogy? What are so-called "special methods" of teaching? Name and describe a special method. What are the dangers of special methods? What are some of the advantages? What is the best present method of teaching reading? What is the project method?

CHAPTER V

INDIVIDUAL DIFFERENCES

Variations in mental ability are a matter of common knowledge.—The subject of the adaptation of the instruction to the needs of individuals, or, as ordinarily denominated, the subject of individual differences, has a very intimate connection with the work of the teacher.

Educators have always realized that children differ in their mental capacities and mental qualities just as they differ in appearance and physical characteristics, hence the modern doctrine of variation is not new. Individuals differ just as objects in nature differ; just as there are no two trees alike, no two stalks of corn alike. Nothing in nature is ever an exact duplicate of anything else. The system of identifying human beings by their thumb prints is an evidence of the fact that each person is individualistic; he is unique.

Difficulty increased by compulsory attendance.—Of recent years, the problem of individual differences has probably been complicated by the adoption

of compulsory attendance laws and the bringing into the schools of all children between given ages. This undoubtedly brings within the scope of school instruction many individuals of diverse characteristics who otherwise would not be pupils in the schools.

The usual method of grouping.—Ordinarily, we have been accustomed to think of children as being divided into three general groups or classes. First, the normal, or average group, and in this we place a majority of the children; second, those of superior ability; that is, better than the average; and third, those who are of subnormal ability, or below the average.

In general this grouping is correct and furnishes a broad basis for school procedure, but it must be conceded that the manner of choosing these classes, or forming these groups, is more or less indefinite. It is largely a matter of judgment, and we have not had any very definite means of putting a given child in one group or the other, unless he showed extreme characteristics. At the present time, psychology seems to be making a contribution to this subject. I will not go so far as to say that it has solved the question, but it has undoubtedly made a valuable contribution. We are in the position of a workman who is employed on a task which depends for its performance on the tools used for such work. If the tools are greatly improved, the work can be

done with greater efficiency. Recently in a stone mill I saw stone being carved with a pneumatic tool. The speed and skill with which the work was done far exceeded the result possible with mallet and chisel. Therefore, we should examine with care the new tool which has been devised for more exact educational measurements.

Thorndike says that the range of ability in school children of the same age is such that in the majority of cases, the most gifted children will, in comparison with the least gifted of the same age, do over six times as much in the same time, or do the same amount with less than one-sixth as many errors. This is a very surprising statement. In other words, it shows a degree of variability that is remarkable and which would have a marked effect upon teaching and the organization of school work.

Principles of teaching based on variation.— The following general principles of teaching are based on the principle of individual differences. They are valid regardless of the method used to determine the amount of difference between children. The first is that stimuli must not be given to pupils in general, but to individuals or to groups characterized by the same peculiarities. That is, we are not to teach the child in the abstract, but we are to realize that we are teaching countless different, living individuals.

The second principle is that it is important for the teacher to appreciate the point of view and the capacities of the child and not to attribute to the pupils her own abilities or her own point of view. This principle has been variously described by different writers, but in essence, it simply means that because a thing may be easy for a teacher, she must not assume that it will be easy for a given child; or if a thing is interesting to the teacher, she need not assume that it is therefore interesting to any particular child.

The third general principle is that when adaptation to individuals is not possible, the stimuli should be chosen which are for the greatest good to the greatest number. In other words, in dealing with a group we must work for group betterment if individual adaptation can not be brought about.

The modern work of measuring the intelligence began with Binet, a Frenchman who first wrote on this subject about 1903. The principal contribution which he made to the subject, the paper in which he really set forth the possibility of measuring the intelligence by a definite scale, was about 1908. Hence the modern science of measuring the intelligence is only about twelve or thirteen years old.

Amount of retardation is excessive.—Age-grade studies and age-progress studies have been made in the public schools for some years, and a large

amount of retardation has always been revealed. The statistics for the entire country show an amount of retardation of from ten to fifteen per cent. of the total number of school children. This is an amount, which, if translated into the cost of instruction, would total more than one hundred million dollars. Ways must be found to reduce this enormous waste of money and time, and of the effort of teachers and pupils.

Remedies based on changes in organization.— There have been various attempts to meet this condition by administrative changes—various schemes of promotion, adaptations to the health conditions of the children, and plans for individualizing instruction. I shall refer to some of these matters later in the chapter.

Needs of superior children are not being met.— All the plans have been based upon the assumption that all children are capable of satisfactory school work under right conditions. We are beginning to find out that this assumption is not true, and that other measures will have to be taken to meet the needs of some. The plans for dealing with superior children have always been very defective. We have almost ignored the needs and the possibilities of the superior child. I do not mean that teachers have ignored it, but that education as a system has ignored it. We have assumed that the bright child

would get very much more out of the same program of work than other children, and no doubt we have been correct in that assumption. But we have never been sure that we have provided for this bright child the opportunity to progress as he should.

Statistics show that the number of very superior children is as great as the number of feeble-minded. All would agree, undoubtedly, that the welfare of society depends in a large degree upon the right education of superior children; and certainly from the standpoint of their needs, unless properly graded and properly advanced, they may form habits of sub-maximum effort and attainment.

How shall children be classified?—Present-day classification of children in the public schools has been based upon chronological age, plus such estimates of the child's ability as teachers have been able to make. That gradation has been fairly satisfactory as a whole, but no doubt all would welcome any plan which would accomplish a more exact placing of children where they belong in the educational scheme. Some of the difficulties of estimating a child's work and his ability from the kinds of tests and exercises which have usually been given are, first, the difficulty of estimating the value of the questions asked. In an examination as ordinarily given the questions are not evaluated; that is, as a rule the questions are considered to be of equal

worth. As a matter of fact, the ability to answer one question may be worth ten times as much as the ability to answer another question in a given list. In the second place, as a rule, a great deal of attention has not been paid to the rate of work. Yet the ability to complete a task within a reasonable time is a factor of great importance.

The third difficulty is that we have never had any very exact standards of attainment; that is, we have not known exactly the amount of work which should be done correctly by a pupil of a given grade; we have used our judgment, of course, and the use of judgment should not be deprecated; but the fact remains that the judgment of the teacher is certainly variable, and if something can be devised which will help out the judgment, it is certainly to be desired.

Objections to class instruction.—The entire system of class instruction has been criticized on account of its supposed failure to meet individual needs. Some of the usual objections to group instruction are that it attempts to meet the needs of the average child, and second, that it tends to become mechanical, and third, that it causes the discouragement of the weaker pupils, and fourth, that it sometimes disregards the health requirements of the individual; that is, that he is put under a strain which is injurious to him.

Benefits of class instruction.—On the other hand, there are certain admitted advantages of class instruction. In class work, the pupil learns that other children are as original or as stupid as himself, and so understands his own ability in terms of the ability of others. This can not be accomplished under any plan of individual work. Secondly, the pupil comes into competition of all kinds in matters of speed and accuracy, in good manners, and everything that pertains to the life of the youth. In the third place, he learns cooperation in group work. And in the fourth place, he develops a saner view of his own rights and duties, and a broader basis of human understanding and human sympathy.

I have always believed that the class method has been under-estimated by writers on educational subjects, and that it is a far more efficient means than is ordinarily admitted. Often when a question is asked, the pupil who makes up his mind what he would answer to that question is more enlightened by the answer of one of his fellows which may be quite different from his own, than he would be if he had answered the question himself. In other words, this opportunity to compare his ideas and his thoughts and his ability with the same things in other children is a tremendous educational influence and opportunity. I am sure we can all remember times in our own class-room life when we were

very glad that we were not called upon to answer a certain question when we had figured out the answer in our own mind, and were ready with the answer provided we were called on, and some one else gave an entirely different answer, and we found that we were quite off the track.

I am also sure that the thousands of instances of that sort which are taking place every day are a splendid educational agency. The individual, if instructed alone, would lose all of these opportunities of cooperation and of competition, and of group work, so that it is highly probable that the class method of instruction is far more advantageous than it is objectionable; that its advantages far outweigh its disadvantages.

Economy of this method.—It is sometimes urged in behalf of the class method that it is very economical; no doubt it is, but that in itself is a minor question from the educational standpoint. The mere fact that it is a cheap way to do the work would not justify it unless it were educationally superior, so that too much stress should not be laid upon the economy of the class method, although it may fairly be mentioned as one of the advantages.

Children have abilities in common.—The fact of individual differences should not blind us to the similarities of children. The fact of differences may be emphasized until we lose sight of the fact that,

after all, children have many things in common. Thorndike has pointed out that while children may differ in their likes and dislikes, almost all children like activity. They may differ in their capacities, but almost all children have a greater capacity for concrete thought than abstract. Hence, individual differences do not prevent the application of general principles of instruction. In other words, in order to use the class method, it does not follow that all the children in the class must be exactly alike, nor even that they will necessarily get the same thing out of the work.

The two factors which determine a child's ability to do a given amount of work in a given time are his intelligence and his previous preparation. If we can find ways of estimating these two things with a fair degree of accuracy, we can tell approximately where he belongs in the educational scheme.

Testing intelligence.—In times past, it has been customary to test the pupil almost wholly on his previous instruction by an examination. As a rule this examination dealt chiefly with the knowledge and skill aspects of his training, and his ability was judged incidentally. It is true that an occasional question was asked to test the reasoning power of the child, but such questions were not the real basis on which the pupil was finally classified.

To-day the testing of intelligence has been so

worked out that it is possible to rate pupils quite accurately.

The best and most accurate of these tests is the Stanford revision of the Binet system. This is fully described in Terman's *Measurement of Intelligence,* to which the reader is referred. By the use of these tests the various grades of mental ability can be determined with a degree of accuracy which is a great assistance to the teacher.

As a result of testing many thousands of children and adults, it has been found that the amount of variation in intelligence is almost the same above and below normal. That is, there are practically the same numbers of bright and the very superior as there are of the dull and the very inferior. This fact is of great significance in teaching, because education of all kinds and grades has been too much inclined to neglect the super-normal children. We have not found as many of them in our schools as of the subnormal, or the below normal, although there have been as many, and we have made less provision for their care and their advancement than the condition demanded. Intelligence tests clearly show that there are just as many children above the normal as below, and that they vary in just about the same degree; that is, that the number of geniuses, to take the highest class, is practically equal to the number of seriously subnormal; on the

other hand, the number of very superior mentality about equals the group of less subnormality, etc.

You will notice that this distribution of intelligence corresponds roughly with the three groups that I gave in the beginning, of the normal or average, and the superior, and the subnormal; in general, that classification is correct. But this measurement enables us to differentiate within these groups, to classify more exactly, and it enables us to give due attention to the details of our problem rather than to take it en masse.

The ordinary plan of classification of intelligence according to this Stanford revision is to classify any one with an intelligence quotient* of 140 or more as in the class of the genius; 120-140, very superior intelligence; superior intelligence, 110-120; normal, 90-110; dullness, 80-90; border-line efficiency, 70-80; below 70, feeble-mindedness. In this classification, there are seven groups, instead of three, hence it permits a classification of pupils more nearly in accord with their ability. The value of this is self-evident. Once the need is found, instruction can be adapted to capacity. Our modern school systems have made very good provision for the various classes of subnormal and mentally defective children. For a number of years, it has been customary to organize special classes, and even special

*See Terman's *Measurement of Intelligence.*

schools for these children, and to give them the kind of work to which they are adapted.

We have not, however, made equal provision for the other group, the superior; and to that I shall refer a little bit later. It is obvious that the results of mental tests in showing us the true distribution of mental ability, the extent of variation and its amount, will add markedly to the efficiency of education and to the welfare of society. This is a splendid contribution to pedagogy and every teacher should familiarize herself with the data regarding it.

Testing knowledge and skill.—The second factor which must be determined in order to classify pupils correctly is the previous preparation. This is important because the work of any grade or class necessarily presupposes a knowledge of certain facts as the basis of present work. This previous instruction has always been judged by an examination designed to test the pupil's knowledge and ability. The defects in this plan are that the questions are not of known value and teachers differ widely in their judgment as to "passing." These difficulties have been met in the various forms of standard tests which have been devised. These tests are far more accurate than any previous measurements, and are a great help to the teacher in diagnosing individuals and groups. The subject is fully treated in Monroe's *Measuring the Results of Teaching.*

Provision for individual progress.—The practical consideration for teachers and administrators is how can group instruction provide for individual progress. There are two general answers to this question. First, employ the same course of study for all, with re-grouping and promoting at frequent intervals. This is the plan most widely in vogue at the present time, although as ordinarily carried out the re-grouping and promoting is not done at sufficiently frequent intervals. The second plan is to have two or more courses of study, differing in the amount of supplementary work to be done. This is practically the idea of having the minimum essentials included in a course of study that shall be covered by everybody, with additional work to be done by various groups in accordance with their ability.

An example of the first type is the so-called Cambridge plan, which is described in E. P. Cubberley's *Public School Administration.* An example of the second type is the Santa Barbara, California, plan, described in the *Educational Review,* March, 1900. I shall not enter into a detailed description of these plans here as they may easily be found by those interested. In addition to these two general schemes, there are several other provisions for flexibility. For instance, there is the plan of furnishing extra teachers, or the Batavia system, so-called.

Likewise there is the plan of the ungraded room, or the teaching hospital, and a third, the Pueblo plan. All these plans have been tried out in various school systems; there is a complete literature of them, and any one who wishes the details of any of these schemes may find them in Monroe's *Encyclopedia of Education.*

Flexibility is desirable.—The important consideration in regard to this whole subject is this: that flexibility should be provided for in some manner. In other words, we should not adopt the class method of instruction, and overlook the fact that adaptation to individual needs is essential in the system itself, and that some provision must be made whereby children can either advance at different rates, or else can be given different amounts of work to do. In the second place, it is important that teachers should be sensitive to the differences in children, and should be skilful in detecting the degree of the effectiveness of the instruction.

Sometimes we are so close to our problem that we can not see it in its true proportions. Sometimes we work with a group of children or with individuals so long and so hard that we lose our sense of values, and as a result, we are apt to estimate the child as either too high or too low in ability and attainment. It is gratifying to know that the improvement in the means of testing both intelli-

gence and previous preparation will render methods of instruction more effective and increase the teacher's confidence in her work.

The use of standard tests.—Both teachers and administrative officials should be familiar with the subject of the scientific tests, and use them as an aid in instruction. While we should be entirely open-minded in regard to this matter, we should not expect to find a panacea in any mere device, no matter how attractive it may be. We are in danger of going to extremes in a matter of this kind, because the doctrine is so attractive; it is so fine to think that we can be exact and infallible in dealing with human materials just as is the engineer in dealing with concrete and steel.

The danger is, then, that the purpose of these tests shall be subverted and that these means will be used for their own sake. If a mechanic who had never had anything but a hand drill should be given an electrical drill, you wouldn't expect him to bore holes in a piece of metal instead of welding it if it needed welding, just in order to use his new tool.

There is always a danger that a new means of doing something will be so interesting that we will use it for the pleasure of making it work. So that what we need is to keep a sense of proportion, to know our objectives, and our means of reaching them, and to utilize every bit of help that may come

to us from science, but not to submerge our whole educational program in the mere manipulation of any method, no matter how interesting and attractive in itself.

As laboratory experiments these tests are very interesting for their own sakes, but as teachers who are engaged in a creative work, our concern is something other, nothing less than the most skilful adaptation of instruction to the needs of the individual child.

To this end, the child must not be required to fit the system, but all the materials and processes of education shall be selected and used that the child may have the opportunity to the highest development and the most useful service.

OUTLINE OF THE CHAPTER

A. Variations in mental ability a matter of common knowledge.
   1. Difficulty increased by compulsory attendance.
   2. Usual method of grouping.
   3. Principles of teaching based on variation.
      a. Stimuli adapted to individuals.
      b. Teacher must have child's view-point.
      c. Stimuli adapted to greatest number.

B. Age-grade studies show marked retardation.
   1. Attempts to meet condition by administrative adjustments.

2. Assumption that all children are capable of satisfactory work.

C. Needs of superior children not met.
   1. Number greater than usually thought.
   2. Value to society.
   3. Danger of developing habits of sub-maximum effort.

D. Present classification based on chronological age.
   1. Rating of pupils not accurate.
      a. Questions not evaluated.
      b. Rate of work ignored.
      c. No exact standard of attainment.

E. Criticisms of class or group instruction.
   1. Objections:
      a. Attempts to meet needs of average child.
      b. Tends to become mechanical.
      c. Discourages weak pupils.
      d. Disregards health requirements.
   2. Advantages:
      a. Pupil rates his ability in terms of others.
      b. Competition.
      c. Cooperation.
      d. Human understanding.
   3. Economy of class method.

F. Children have abilities in common.
   1. Group instruction possible.

G. Child's ability conditioned by two factors:
   1. Intelligence.
      a. Means of testing.
   2. Previous training.

H. Provisions for individual progress.
   1. Same course of study with individual promotions.
   2. Two or more courses of study.
   3. The extra teacher plan.
   4. The ungraded school.
   5. Promotion by subjects.

I. Flexibility should be provided.

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Thorndike—*Principles of Teaching,* Chap. VI.

TOPICS FOR DISCUSSION

To what extent is the public school system a "lock-step" system? Does the class or group method of instruction allow for differences in the ability of pupils? How wide a range of ability will be found in the average class? How can this ability best be tested? What is the "intelligence quotient"? Is it an accurate mark of mental ability? Should pupils be promoted oftener than once a term? When is a pupil considered to be "retarded"? How much retardation should there be in an average class? How can retardation be reduced?

CHAPTER VI

THE COURSE OF STUDY

The science of curriculum making is in its inception.—This subject is of special interest at this time because the science of curriculum making is just beginning. Heretofore, the course of study has been partly traditional, partly experimental, and has been formed in an empirical rather than a scientific manner. At present the course of study is under investigation and the methods of constructing it are being reduced to their formal steps. Several books have been published giving the results of these studies, the titles of which will be found on pages 92 and 93. Several cities are revising their courses of study in accordance with the newly formulated principles. Without doubt these courses will be better adapted to the needs of the pupil and of society.

The course of study is determined by the aims of education.—What is a course of study? It comprises the materials of education. We have discussed in this book hitherto the aims, the purposes and the methods of instruction. Now we are to

consider the materials. Obviously, the materials will be determined largely by the aims of education. As generally agreed upon, the kinds of materials to be used in a course of study must cover both the knowledge side of life and human experience, and also the training side, or the side of processes. In other words, information is not the only object of the course of study, but training in certain skills, and habits, and also the development of ideals.

The importance of knowledge.—The idea that the curriculum must contain knowledge elements is an old one. Schools have always had an important function as the savings-bank of society, by which the accumulated knowledge of the past is stored up and transmitted to the new generation. There is a certain attainment, a race heritage, of science and of information in many fields—history, geography and literature. Unless that accumulation could be transmitted to each succeeding generation, it would be necessary for each generation of children to begin at the beginning and rediscover all the facts for themselves. Obviously, this would be a great waste of time and effort.

Not all facts can be studied.—Of course, it is not possible for the new generation to begin where the old one left off, but it can begin very much further ahead than would be possible if the knowledge side of the course of study were ignored. The knowl-

edge elements of the curriculum then are fundamental. But there is so much knowledge in the world to-day,—the accumulations are so vast. As Emerson has said in the *Essay on Books*: "In 1858, the number of printed books in the Imperial Library at Paris was estimated at eight hundred thousand volumes; with an annual increase of twelve thousand volumes; so that the number of printed books extant today may easily exceed a million. It is easy to count the number of pages which a diligent man can read in a day, and the number of years which human life in favorable circumstances allow to reading, and to demonstrate that, though he should read from dawn till dark, for sixty years, he must die in the first alcoves." Therefore, it is important that the course of study should not contain just any facts, but fundamental facts, essential facts, typical facts, facts which are centers of systems, facts which are principles, around which whole families of facts may be grouped.

Knowledge of social relations is important.— In these days, also, great emphasis is being placed upon a knowledge of social relations and institutions. The school is not an isolated organization, but it is an integral part of the society which supports it. Therefore, the knowledge should have a social reference. In these days especially, we are emphasizing the social side by thinking a great deal

about civic relationships, training for citizenship, and true Americanism. These elements are vital and are one of the chief reasons for the school's existence.

A knowledge of vocational conditions is important.—Another recent element that has entered the curriculum is the subject of vocational studies. During the past ten years great strides have been made in vocational education, and no doubt the future will witness still greater development. Therefore the course of study must contain the essentials of information about vocations, although up to the present time vocational information has not been available to any very great extent or in any very usable form. That is partly due to the fact that society is becoming increasingly complex, and the facts change so rapidly that a definite literature of the subject is difficult to formulate.

The conditions of training in industrial, in commercial, and even in professional life are in a condition of rapid flux. No one has yet made any extensive compilation of vocational information. The current federal census will be exceedingly significant and interesting, because in it will be found classifications of occupations and many facts in regard to vocations in America which have developed since the census of the previous decade.

The development of skill.—The second general

set of conditions necessary in a curriculum are the provisions for the attainment of skills. This is essential because knowledge by itself is not power. It is power only when used or applied. It has long been the practise to ridicule the person whose head is full of unrelated and unusable facts—the walking encyclopedia. This illustrates the point that the world believes, and we educators believe with it, that knowledge alone will not suffice. Skill in any line of work is developed by repetition, and practise, and, too, by practise under controlled conditions. The training value in school life is enormous, not only in the study of various subjects themselves where technical skills are developed, as in arithmetic or penmanship, but in the development of the so-called school habits: industry, punctuality, regularity and other similar qualities.

All of these grow out of the fact that the school is a training ground. Some writer has called attention to the fact that the word "curriculum" means either a race course, or the race itself, but the root meaning of the word "curriculum" is activity. It is a doing, rather than a mere learning. The idea of the element of skill in a course of study, should not be restricted to the skills developed in connection with the study of certain subjects, but it should be extended to cover the pupil's entire behavior. It should include his ability to apply outside of the

school what he learns in the school. From this broad standpoint, it can be seen that skills are in many respects the largest outcomes of school training.

The development of ideals.—The third element that must enter into the curriculum is the provision for the creation of ideals, or attitude toward life. This covers the whole question of tastes, standards, enthusiasms, ambitions, desires, aversions, appreciations, etc. In short, it covers the whole question of the volitional or the will attitudes of the child. This field has been left to the accidental, or perhaps it would be fairer to say to the informal part of school life, and it is commonly agreed that school situations themselves are the chief means to be used in the development of these qualities.

Some one has said that it is important, not only to know what is true, but to place a value upon that truth. In a sense, this is the most fundamental of all the questions pertaining to education, because it concerns the final goal of one's efforts. It has to do with one's definition of the absolute values of life. Of course, translated into terms of childhood it may not seem so profound as that, but if rightly provided for, it will afford the child at his various stages the necessary training which will lead to a life philosophy when he reaches a wider field of experience. These three elements, then, must enter into the materials.

Principles of organizing subject-matter.—After the materials have been determined, the question then arises, how are they to be organized? In general, there are two principles of organization of materials which have been followed. First, there is the logical order. The subject of history has usually been taught chronologically, because that is the way it happened. The educational philosophy put forth by Froebel and Pestalozzi was to find the simple elements in all subjects, present them, and then go from the simple to the complex. All of education down to the very recent years has been dominated by this simple-to-complex theory. It appears to-day, however, in the light of modern psychology that that is not the way all subjects are acquired by the child. Modern psychology claims to have made the discovery that the child learns, by the analysis of a complex situation for himself.

This changes the whole point of view of organization. In so far as the psychological method of organization is possible it should be employed. The modern project method is nothing more nor less than an attempt to find larger wholes, the complex situations which carry within them the necessary elements which the child may comprehend by his own analysis. For this reason, the project method has very much of value attaching to it.

Another advantage of the psychological method

of organizing subject-matter is that by it, it is more nearly possible for the material to advance step by step with the development of the child. The logical order has to do with the necessities of the subject-matter and its unfoldment, without much reference to the capacity of the child and his development. The only difficulty here, is that the contributions of psychology to this question are comparatively meager, and where we look for exact answers, we are met with generalities.

The scientific method.—What is the so-called scientific method of curriculum making to which I referred earlier in the chapter? It is based on the theory that the psychological or educational laboratory can measure and evaluate different types of educational processes and results. In some fields, we know a fair degree of success has been attained. An interesting example of this is the various studies that have been made of spelling lists—words selected from the vocabularies of children of various grades, based on the frequency of occurrence of the words. Probably the perfect word list has not yet been discovered, but undoubtedly the modern spelling book with its four or five thousand words is very much nearer a usable list than the older books which were selected on a dictionary basis without very much reference to their use. Comparison of the old-time spelling books with the modern books would be very

interesting from this standpoint. Other examples of attempts to measure rather exactly, either educational processes or educational materials, will occur to you. It is unnecessary to go into further detail.

Recent writers on scientific curriculum making have criticized modern courses of study as being accidental to a large degree, and as being the result of following tradition or other ill-defined purposes. One of the opening paragraphs in Bobbitt's *Curriculum* states: "We have aimed at a vague culture, a little defined discipline, a nebulous, harmonious development of the individual, an indefinite moral character building, a social efficiency, or often enough nothing more than escape from a life of work. Often there are no controlling purposes; objectives are but vague guesses, or not even that."

Contrast with that a quotation from the Indiana statute: "School authorities shall have taught in the common schools, orthography, reading, writing, arithmetic, geography, English grammar, physiology, history of the United States, scientific temperance, and good behavior, and such other branches of learning as the advancement of the people may require, and the trustees and other officers in control direct."

This is definite enough to be sure. Of course, it may be objected that the statute has not defined the content of these subjects nor the methods by

which they shall be taught. This is true, but if it be concluded that on that account society is leaving this whole matter of the curriculum to somebody's blind guess, that would be a very great mistake. There is no subject in which the public takes so great an interest. The present subjects in the course of study have been placed there in response to a definite public demand, and whenever that demand calls for other subjects, they will be included. If a school official were to introduce a subject of which the community did not approve, he would not be left long in the belief that vagueness and nebulousness were prominent factors in curriculum making.

During the past year, there was legislation in several states with reference to the teaching of the German language and other foreign languages. It is unnecessary to multiply instances. The facts point to a very definite social reference as the basis of the curriculum.

The course of study is a social product.—In our society, which is democratic, and which functions through free institutions, the action of the social body itself results in a certain product. That product is not the less definite and concrete because it is generated socially. For example, consider the matter of legal enactments. Thousands of laws are passed every year by the various state legislatures

and assemblies as well as by Congress. These are laws in one sense, but before they become real laws, they have to be interpreted by decisions of courts. There are thousands and thousands of laws which were enacted but which never became a part of the common law of this land at all. They simply died a natural death, either because they had no function and hence no court ever had to pass upon them, or because the courts found them to be of no use. If you should ask a good lawyer about a certain law that had been passed but never acted upon by the courts, he would tell you that he did not know whether it was a law or not.

In other words, what it takes to enact law finally is this action and interaction; this grinding process of the great social organism. Our courses of study result from something like that. They are a very definite product of our civilization. As indicated above the present subjects in the course of study were put in in response to a very definite social need. It is true that somebody somewhere may have introduced something tentatively, which continued for a little while, and by and by disappeared, but the subjects that become a part of the course of study of this land go through a very different process.

Neither is it the case that this social process produces a course of study consisting of a tradition-

al body of knowledge handed down to us which we are using because we haven't initiative enough to do anything different. It isn't necessary to make such an assumption in order to make a case for science. The contribution of science to this problem will be very valuable and will help in the selection and organization of materials, but the result will not be widely at variance with the present courses.

Essentials of the scientific method.—What are the principles of scientific curriculum making? The first is the assumption that the total range of human abilities, habits and knowledge is the objective of the course of study, and furthermore that this objective may be discovered by an analytic survey of human nature and human affairs, and that the curriculum will consist of that series of experiences which children must have to attain this objective. In particular, it is assumed that the curriculum should supply objectives not sufficiently attained as a result of outside experience. That is, that the undirected life of the child will bring about certain development and certain training that it is the function of the school to provide; especially those processes which are absent from the casual experience of the child.

Supplementing experience.—From this standpoint, the curriculum consists chiefly of the material necessary to supply the things which the pupil does

not obtain in his ordinary experience. Illustrations of this may be seen in the various subjects added to the curriculum within the last few years. Agriculture, for instance, has been added, and domestic science, and hand work of many sorts. In an earlier day, in a more pioneer condition of society, the child had these experiences in daily life and it was not necessary to have them in school; but as these things disappear from the home life society asks the school to include them, if it considers such training important.

The value of this method.—It may be objected to the scientific method of curriculum making that it is not truly scientific; that it is not sufficiently exact; that its materials are not objective; and that its results are not capable of verification. These criticisms are valid from the standpoint of science, but on the other hand, the process may be helpful and may throw light on the problem even though it does not fully solve it. The endeavor to find objectives in the adult world, and to supply the material and processes which will attain those objectives in the schools will clarify our thinking and enable us to form our courses of study intelligently. Just as the use of mental measurements and standard tests is not scientifically accurate and yet is significant and does help us to make a diagnosis and to select and apply the right educational means, so

this application of science to the making of the curriculum is of great value. It shows that the curriculum is related to life; and that the training which is to be provided is furnished because of the fact that it is necessary in life outside of the school. In so far as we study the needs of society and the processes in school which will develop the qualities in children which will meet those needs, just to that extent we are going to definitize our problem and be better teachers.

The development of individualism.—We should not over-emphasize the sociological aspect of this question and fail to mention the needs of individual development. The course of study really depends upon the interaction of the two elements, the needs of the individual for the development of his powers and of his highest capacities and abilities, and the needs of society for a certain kind of service. If we were to focus our thought entirely upon the individual and his training, we might develop a generation of freaks; we might increase the individual powers and capacities in ways not useful to nor needed by society. On the other hand, if we look exclusively at the social needs, and attempt to fit the boys and girls to occupy places in adult life, we may then produce a kind of dead level of humanity which would avoid the development of powers beneficial to civilization.

It is the interaction of these two elements, the needs of society for certain kinds of service on the one hand, and the needs of the individual for growth and development on the other which determine the course of study. If we can solve the problem with both these elements in view, and meet the needs, both of society and of the developing individual, then we have attained the desideratum in curriculum making.

Teachers and school officials should face this question of curriculum making in the spirit of the student, and should welcome all of the assistance and all of the light to be had from science and from experience, to the end that our schools and our work with our boys and girls shall develop in them the qualities which they need to fit them to take their places and do their best service in their world.

OUTLINE OF THE CHAPTER

A. Special interest at this time.
B. Nature of course of study.
   1. Determined by aim of education.
   2. Comprises both knowledge and training elements.
C. Course of study must provide:
   1. Knowledge.
      a. Fundamental.
      b. Social relations.
      c. Vocational.

2. Skill.
    a. The application of knowledge.
    b. Repetition.
    c. Habits.
3. Ideals.
    a. Attitude toward life.
    b. Evaluation of facts.
    c. Life philosophy.

D. Principles of organizing subject-matter.
1. Logical.
2. Psychological.
3. Scientific method.
    a. Based on theory of accurate evaluation.
    b. Criticisms of current courses overdone.
    c. Legal and social aspects.

E. Principles of scientific curriculum making.
1. Selection of objectives from adult life.
2. Supplying materials and processes for attainment of objectives.
3. Supplementing experience.
4. Objections to scientific method.
5. Value of scientific method.

F. Development of individualism.

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TOPICS FOR DISCUSSION

To what extent is the course of study based on tradition? What finally determines the subjects which shall be included in the course of study? Obtain a course of study of twenty years ago and compare it with a modern course. What are the chief differences? How is the course of study usually formulated? To what extent does the community have a voice in making the course of study? What is the relative worth of practical and cultural elements in the course of study? Give an example of a modern scientifically organized course of study.

CHAPTER VII

HOME STUDY AND SUPERVISED STUDY

Recitation work better organized than study.—It is probably true that schools have paid more attention to method in the recitation, to the careful determination of the steps of the recitation, and to its use as a means of instruction than to the pupil's study or preparation of the lesson. It is also probably true that a great deal of the studying which children do is left to their own initiative and ingenuity. Since the major factor in learning is the activity of the mind, it is fully as important to direct the study and preparation of the pupil as to test him by means of the recitation.

Methods of study are important because they are related to the learning process.—The subject of supervised study, then, is of exceptional interest, because of the fact that it is concerned with the question of how children learn, and also because it has to do with the extent to which the activity of the child in his study must be directed or controlled. Of course, if he is perfectly competent to be set to a

task and allowed to follow it without suggestion or direction, it will be a waste of time to devote much thought to supervising him.

Opposition to outside study.—Home study is often opposed by parents. The time of many children is disposed of in other forms of activity, such as home duties, "chores" or gainful pursuits. Many parents feel that the school should give academic instruction, but that outside of school the child should have an opportunity to devote himself to some activity which will train him in useful and practical matters by actual experience. But in spite of these objections the crowded school curriculum and the short school day have necessitated a certain amount of outside study in most schools.

Objection has also been raised that the health of a child may possibly be jeopardized by spending too many hours in hard mental work. While this is true, as a matter of practical experience, it rarely happens. A more valid objection is that too much time spent on study tends to train the pupil in poor mental habits. It is apt to result in a diffused type of mental activity, rather than concentrated effort.

The disadvantages of home study are more imagined than real; they can all be overcome by proper planning, and systematization, and they are, after all, a negligible factor in the discussion of this question. The real difficulty with home study is

in controlling it, in directing it, and in knowing the character of it. For that reason, only certain kinds of work should be allowed to be done at home. There would be considerably more detriment to the pupil in preparing arithmetic at home than history, or some phases of English work. Whatever is done outside of school should be done under as carefully controlled conditions as possible in order that the work may not merely be done for the pupil by another.

Supervised study needed because of class-room method.—In considering the question of supervised study at school, one of the first difficulties is the fact that the traditional class-room method causes the teacher to hear one class recite while another is studying. This makes it almost impossible for the teacher to give very much time or to devote very much thought or effort to the supervision of preparation. This means that the teacher is therefore forced to judge quite largely from the recitation what the child has accomplished by his study, and the manner in which he has obtained his results.

Administrative solutions.—This question is an administrative one as far as providing the time for it is concerned. If the teacher is required to hear one class recite while the other class is studying it is obviously a question of administration to change that plan. There are several ways of doing this.

One of the ways which is commonly offered as a solution of this problem is known as the Batavia plan.

Batavia plan.—The essential feature of this plan is that it furnishes additional teachers who cooperate with the class-room teachers by supervising the study of pupils while the class teacher is hearing a recitation. By this means, individual instruction is given, and the pupil is assisted in the very points in which he needs help. The plan is an excellent one and has been generally used with good results.

Two objections have been raised against it. First, that it adds to the cost of instruction, and second, that by it weaker pupils are made more dependent rather than stronger. These are easily refuted. As to the cost, it has not been shown that the added cost is out of proportion to the results secured; and as to weakening the pupils, that would depend upon the way the instruction was given and would not constitute a defect in the plan. Individual instruction should assist the progress of the pupil and will do so if properly given. The value of any system is determined by the manner of applying it, and as to the value of supervised study, educational opinion is entirely favorable.

Oakland City plan.—Another plan is one in vogue at Oakland City, Indiana. This provides that each child shall make out a complete schedule

of all the time which he devotes to school tasks, including the periods when not reciting at school, and the study done at home. In other words, this plan does not advocate any particular division of his time, but it requires that he make a definite and systematic program of work in the belief that more will be accomplished than by leaving the matter to impulse. In other words, it is exactly comparable to the carrying out of a household budget and personal expenses; it requires you to keep account of that which you do without prescribing just what you shall do. The reports of this plan in the educational journals are quite favorable to its operation as far as Oakland City is concerned.

Newark plan.—There is still another plan of accomplishing the same purpose in vogue in Newark, New Jersey. It is a double period of sixty minutes, the first portion of which is spent in recitation, the second portion in conference or independent study under the direction of the teacher. All three of these plans are administrative attempts to solve this problem in terms of revision of the schedule, and the amount of help that can be given the pupil.

Pedagogical solution.—But the question is a pedagogical one, so far as knowing how to supervise study is concerned. This is the more important phase of the question. The supervision of study as a teaching problem depends on the same principles

as those which govern the question of methods; that is, the aims, methods, and the materials of education.

Principles of teaching.—Let us rapidly review some of those points in order to relate them to this particular topic. One of the most important considerations is that the pupil learns by self-activity. We have long since abandoned the theory that children are educated by having information poured in upon them. It is not a quantitative process. The most perplexing problem in pedagogy is how to educate a person who will not supply the initiative and the effort from within himself upon which all development depends.

Everything that goes on outside of the individual will not educate him. He could be in the finest educational institution in the world, he could be surrounded by the most interesting materials, he could be the subject of the best instruction, and yet until his own mind reaches out with an interest and a desire to lay hold of the facts and the experiences that are about him, the educative process is ineffective as far as he is concerned.

The second very important principle is that the learning is conditioned by the previous experience and training of the pupil. This is the principle of apperception, which was treated in a former chapter. The third necessary factor is the arousing of suitable interest and motive. The fourth principle

is the necessity for the development of the reasoning powers or judgment; and the fifth, the training of the will and of the emotions.

Help in study must be adapted to need of moment.—The problem of accomplishing these aims is greater and more difficult when we are dealing with the question of supervising the child's study, or his preparation, than it is in the recitation, because in the recitation we can plan in advance the presentation of certain materials and we can work according to this predetermined scheme, but in attempting to bring about all these results when a given child is working on a given problem or project, you have the disadvantage that you can not plan in advance; you must meet the exigencies of his need at the moment, with the added difficulty that it is often impossible to see just what that need is.

Illustration of failure to supervise study.—An interesting example of the need for supervision of study was the confession of a business man that during his school career he solved problems in arithmetic by first getting the answer and working backward from it. It seems incredible that this should not have been discovered and corrected by his teachers, and it is difficult to understand how he could have carried on his work successfully. But it points to the importance of knowing how the mind of the pupil works and of supplying rational methods.

Illustrations of this sort of thing will occur to every teacher; you have undoubtedly met hundreds of instances in which children have obtained results by some peculiar method of their own. This is particularly true of mathematics, because mathematics seems to lend itself more to formal schemes of getting results, but it is true as well of other lines, as every teacher knows.

Careful assignments will aid.—We should not fail to recognize the importance of the proper assignment of work. The manner in which the child attacks his lesson will depend in very large degree on the manner of the assignment. Each lesson should constitute a distinct problem to be solved, or something definite to be done. It should not be merely the assignment of a certain number of pages, or a quantity of subject-matter.

The making of assignments in a scientific manner is a very complex and difficult matter when the wide variety of subjects which the average teacher must teach is considered. The course of study covers the entire range of human knowledge and human activity, and a teacher in the course of her day is supposed to assign work in all these various departments according to the correct plan for that particular type of work, whether it be music, physical culture, mathematics, science, history, language or scientific temperance. While it is

not an easy matter, yet it has very much to do with the way the child approaches his task, and the success he has in solving it. It is sufficient to say that assignments of work should be made in terms of the fundamental principles of teaching, and if this be not done it will detract from the effectiveness of the instruction in direct proportion.

Correct habits of work should result.—The final outcome of the supervision of study should be the development of right habits of work on the part of the child. These habits are probably the most important product of school training, because a child may forget much of that which he studied or learned while in school, but his habits of work go with him through life, and will always characterize his activity. If, in his school work he has not learned to be clear in his thinking, to be systematic, to concentrate his mind, to have respect for accuracy, and to work in conformity with the laws of habit formation, then he has been very poorly equipped for later work. But if, on the other hand, his work has been so directed and trained that he has developed these qualities, then, indeed, is he armed for future events, whatever they may be. So that the ultimate results of this work should be not merely the acquisition of the content of the course of study, but it should be a set of habits which will stand the pupil in good stead in his future work. And these habits are

formed quite as much by his self-activity while he is studying as by his directed activity in the recitation.

Scientific methods will aid.—What has the modern scientific movement to contribute to the question of supervised study? In so far as it is necessary or desirable for a teacher to find out as accurately as possible the status of the child and the way he works, standardized tests may be of considerable assistance. In so far as these standardized tests furnish a more accurate method of diagnosis than we have heretofore had, just so far they are of great assistance to the teacher in directing the child's study. It has been customary to rely on the insight and the intuition of the teacher to discover any peculiarities on the part of children in their ways of working. In fact, the whole recitation method is based on the assumption that through it the need of the individual pupil will be met. But unfortunately, the restrictions imposed by the numbers of children and the hours and the amount to be covered, are such that frequently it is impossible for the teacher to give the time to an individual case which it requires. If a diagnostic test will help to show the child's mental condition, will show his way of attacking a problem and solving it, then as a rule the remedy is exceedingly simple.

Monroe* summarizes the service of standardized tests to advantage in the following language: "Not only are they enabling the teacher to check up his conception of what can justly be expected of children, but they are indelibly impressing upon his mind the absolute need for recognizing the individual differences among his pupils in respect to each problem of learning, and for studying the reading needs of his pupils in order to plan instruction most wisely."

Diagnosis prerequisite to instruction.—In general, it may be said that the intelligent and judicious use of standardized tests will lead to a more accurate diagnosis and a better adaptation of the means of instruction to the securing of predetermined results.

I am sure that all teachers welcome any such means, whether they are exactly scientific or not. Certain it is that they are very significant and illuminating, and that they are an aid in the solving of this particular problem.

The difference between a standardized test and others is that a standardized test is evaluated. The tests or examinations ordinarily given are not made up on a definite basis. They are used as measuring units although they vary with the teacher, the class, and the subject. But in a standard test, the ques-

*Monroe, *Measuring the Results of Teaching.*

tions are of known worth. The rate and quality of response from pupils of various grades are known.

We may take it for granted that in order to do the best work, the teacher needs to have as much information as possible about the child, his condition, his status in a particular subject, his methods of work, and study, and how to help him. For this reason, diagnostic tests assist in definitizing the teachers' problems and in planning more effective instruction.

OUTLINE OF THE CHAPTER

A. Recitation work has been planned more carefully than supervision of study.
   1. Methods of study are important because they are concerned with the learning process.

B. Home study often opposed.
   1. Time of child needed for other duties.
   2. Possible danger to health.
   3. Disadvantages more apparent than real.

C. Supervised study needed because of class-room method.
   1. Question is administrative.
      a. Batavia plan.
      b. Oakland City plan.
      c. Newark plan.
   2. Question is also pedagogical.
      a. Depends upon aims and methods of instruction.
         i. Self-activity.

ii. Apperception.
iii. Interest.
iv. Reasoning power.
v. Emotion.

b. Must be adapted to need of moment.
c. Illustration of need.
d. Importance of proper assignments.
i. Must be in accord with principles of teaching.

3. Result of supervision should be correct habits of work.

D. Contribution of modern scientific education.
1. Assists by aiding correct diagnosis.
2. Welcomed by teachers.
3. Standard test evaluated.
4. Makes teachers' problems more definite.

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TOPICS FOR DISCUSSION

Should elementary pupils be required to study at home? If so, how much? Should this work be directed by the teacher or should the pupil be left to his own devices? To what extent can the study in school be supervised? Suggest a plan for the efficient supervision of the pupils' study. Is there any evidence that the supervision of study improves the results obtained by the pupils?

CHAPTER VIII

THE RELATION OF THE SCHOOL TO THE COMMUNITY

The school is society's principal educational institution.—The subject of the relation of the school to the community is a fundamental topic, because of the fact that the school is a very important social institution, and all of the work that it does has a distinct social reference. We sometimes think of the school as society's only educational organization. As a matter of fact, it is not the only one, although it is probably the most important single agency. The other agencies also are important, such as the home, the church, the courts, the newspapers, and the other institutions of our democratic country, and it is the duty of the school to cooperate with and to supplement these agencies.

The school cooperates with other agencies.—Such cooperation is well illustrated by the way in which the school lunch problem is being cared for in many cities. Usually the local woman's club, a parent-teacher association or other welfare organization initiates the work of supplying a school

lunch for the pupils who need it on account of being under-nourished. The organization usually supplies financial and moral support, and the school furnishes the supervision and management. In time, the work may be taken over entirely by the school, although in some states it would be necessary to obtain legislation to permit this action. Educators are coming to realize that anything necessary to the physical or mental well-being of children may come within the province of the school. Since education has been turned over quite largely to schools there has been brought about a tendency to place in the hands of the schools these various questions of community interest.

The school transmits the race inheritance.— In delegating the work of education to an organized institution, aside from the problem of preparing the youth for effective participation in adult life, there are also undoubtedly two other distinct purposes. One is that of transmitting to the oncoming generation the former accomplishments and achievements of civilized mankind. In other words, transmitting the race inheritance of science, literature and history. Otherwise, each generation would have to rediscover for itself the facts necessary to its progress. We must not ignore the traditional purpose of education in thinking about the social aspects of it.

The school is a constructive social force.—The second general purpose is that education shall be a preventive or constructive factor; that is, that society may avoid in the future some of the mistakes made in the past. Many of our social institutions are remedial in character. Education is quite largely formative. It is interesting to note that the purpose of education is always determined by the social ideals of each age and race. Even within the brief compass of our own history, the change that has taken place in the purpose of public education is so marked as to be almost incomprehensible. The history of education in the Colonial days shows that the purpose was quite distinctly that of training children to avoid evil and sin. The broad purpose of preparation for living, for citizenship, for social participation was not thought of; it did not enter into the educational purpose, except in so far as the inculcation of moral principles would bring about these results.

Purpose of education determined by sociological conditions.—The change from that early ideal to the modern conception has paralleled a certain change in society, in the kind of life people live. In those days, the life outside the school was such that it afforded certain kinds of training. It was possible to get experience in the home and in the community, in productive industries, and in other

occupations. With the birth of the factory system in America, a tendency started in American life which is still working itself out. That was the principle of specialization of effort and division of labor.

Complexity of modern life.—Secretary Lane recently made the statement that in these days we live only by unanimous consent. This points to the interrelation of every class of work in society, and to the fact that the cutting off or the interference with any one of the many lines of work pursued by any special group will affect all the rest. That is axiomatic; we know by experience that it is the case, whether it be a question of a coal shortage, a sugar shortage, a milk shortage, or an interruption of transportation. We are all affected by any of these activities either breaking down or being temporarily stopped.

Specialization of efforts.—This tendency to specialization of effort in society tends to the development of a series of water-tight compartments as it were, so that there is comparatively little interchange of information between the various groups, and comparatively little understanding on the part of one group of what others are contributing to the common life. Hence, along with the gain which comes about from this arrangement there is a certain loss; there is a loss of coordination, of mutual sympathy and respect. I do not mean that in a bad

sense, but I mean that the tendency is for each group to magnify the necessity and importance of its own particular specialty somewhat at the expense of the work of every one else.

Publicity helps coordination.—This fact points to the necessity in civilization to-day of some means of legitimate publicity for every kind of work. If we, for instance, could know exactly in regard to the steel industry, we would have very much greater appreciation of the difficulties and of the value of that particular kind of work. This is equally true in regard to public organizations. If we could know exactly the problems facing the Board of Health, just what funds they have at their disposal, how these funds are apportioned, the problems presented in community health and sanitation which call for solution, we would certainly appreciate very much more than we do the work of that body. The same is true of various branches of municipal government; it is true of every department of our life. We know too little about what other people are doing and therefore we do not have so complete an understanding, and hence so great an appreciation, as we should have of the importance of their services.

This is equally true of education. Education has become a more or less technical pursuit, not well understood by the average citizen. What is needed is a suitable means of acquainting the patrons with

the work of the schools, their special problems, and their progressive program.

Social aspect shown by the curriculum.—Reference was made in a previous chapter to the social aspect of education as shown by the dependence of the curriculum on public need and public demand. This is one of the foremost indications of the close relationship between the school and the community, and it points to the importance of the curriculum being based quite definitely on the social conditions of which the school is a part.

Attitude toward war work.—An excellent illustration of this subject is the extent to which the schools performed war work during the past two years. I am sure we all remember very vividly the extent to which our effort was turned into the channels of special activity growing out of the needs created by war conditions. Indeed, to such an extent was that true that a great many teachers felt that the entire educational work was submerged in a war program.

There were two general attitudes toward these special war activities. Some communities attempted to exclude all such things from the schools on the ground that they interfered with the regular work of the schools; that the children should have their time protected; that their education for future need was sufficiently important that they shouldn't take

their time to make war posters or sell thrift stamps or anything else of like nature.

As a member of one of the state committees I visited one or two communities to learn why particular lines of war work were not being taken up. I met with certain objections to the effect that the school couldn't be distracted, and the children couldn't have their school work interfered with by these never-ending demands for this kind of effort.

The argument which we advanced to meet the situation was simply this: What are these lines of study that you call the regular work of the child; in other words, what is the child's business? If it is a matter of preparing him to be a good citizen, what is the thing which will best do that? Is it simply a study of dead material that was put into the course of study years ago when it was vital, but which has now ceased to be so? Would not the depriving of the children of the opportunity to participate in the typical activities going on in the world about them more than overbalance any possible good to be obtained by attempting to confine the child to routine duties?

In our schools the teachers took up every line of war work that offered itself. It was carried on enthusiastically, and successfully. The sale of thrift stamps was so well organized that they are still being sold. The report for a recent week shows

that the sales in the schools amounted to about nine hundred dollars. The consensus of opinion among the teachers and principals is that the inspiration which came to our children through feeling that they were a necessary part of this nation and that there was a work for them to do was sufficient to overbalance the loss which came from breaking up the routine. Because, after all, education in the broad sense is a spiritual business, and whatever acts on the motives and the ideals of the children is of fundamental educational importance.

In America we have talked a great deal about the democracy of opportunity. We need also to talk about the democracy of experience. There is a principle of psychology that emotion follows action. The patriotism and the loyalty shown by the men who came home from service abroad is an excellent example of this type of psychology. Having given service and sacrifice for their country, these men came back more intensely loyal to its institutions than they had ever been before. Through the work of the American Legion they are missionaries of Americanism and they are trying to set up standards of one hundred per cent. patriotism in every community. In part this was created by the service which they gave.

In teaching patriotism, it isn't always possible to inculcate the sentiment in advance of the action.

If a child can be brought to do something for his country, it is very probable that he will love it.

Sociological aspects of modern schools.—Let us consider a few of the characteristics of modern schools which show a distinct social program. Take first the question of school architecture. The planning of schools to-day has become a distinct branch of architecture. A great deal of work has been done in standardizing schoolhouse construction. The modern school building that is so planned has a great many conveniences and provisions for social activities. Examples of such provision are the assembly room, the auditorium, the gymnasium, the shops, and the domestic arts department. Also there is often a room for a branch of the public library and for free dental clinics. In fact, there are few community needs that are not provided for in the modern school plant.

The whole question of schoolhouse construction has been made over because of the fact that the school plant in these days has a wider use than it had a generation or two ago. Many of the buildings which have been erected for some years are quite unsuited to the modern demand. The publication by the Indianapolis Board of School Commissioners of a pamphlet entitled *Standardized Requirements for Elementary Schools* has received considerable attention in various parts of the coun-

try and has helped to set up new standards along this line. Other localities have made a contribution to the progress of schoolhouse planning by developing a special type of building with unusual features such as the "expanded corridor" for use as a play space, as developed in Cleveland, the "one-story" schools, and the overhead lighting system exemplified in one of the Kansas City buildings.

The work of the National Education Association Committee on standards has also helped to bring the problem to a definite, scientific basis. As a result modern buildings will be fully adequate to the work for which they are intended.

Community uses.—The broader use of the school plant is shown by such things as summer schools, evening schools, and various types of vocational classes; and in addition to these there are concerts, lectures, parent-teacher club meetings and other community center activities. All these are of comparatively recent growth and are an evidence of the extension of public school work. Indeed, it is now common for the public schools to be used for almost any type of community or neighborhood meeting which is not exclusive in any sense; that is, any meeting which is open to the public upon equal terms. The parent-teacher associations afford one of the best points of contact between the school and the public. They tend to establish a certain

amount of acquaintance and cooperation. The parent-teacher associations are almost universal. They have fully shown their value, and where properly organized and conducted they are a power for good in aiding progressive school policy.

Student organizations.—There are many student activities and organizations which illustrate this tendency, such as junior chambers of commerce, the printing of school papers, the use of older pupils as junior attendance officers, school orchestras, and athletic teams. Many of these activities are merely reproductions of similar organizations in the community at large, and they are an attempt to educate the pupil by participation. The work of school savings is distinctly a community matter. Primarily, of course, such a question is for the home, and in many instances it is handled through the home, but the school seems to be able to emphasize the value of this habit and to furnish an easy method of carrying out a savings plan.

The work of the various school and home garden associations is another evidence of cooperation between the school and the community. This work has been carried on, especially during war times, with the cooperation of one of the departments of the government, with a distinct purpose of helping to win the war. The Junior Red Cross is another illustration of a war-time organization which is

proving equally serviceable in time of peace. The extension of this most valuable social agency into the school life of the nation is a great gain for education.

Special days.—Another evidence of community influence is the observance of special days and occasions. How many of these there are! How often teachers groan in spirit when they have another one to celebrate—fire prevention day, thrift day, arbor day, Mayflower day; the list seems endless; but again the question is, shall we exclude these matters on the ground that they interfere with the regular work, or shall we accept them as an opportunity to teach citizenship and patriotism in the most vital and effective way by letting the life of the nation flow through the school; by so doing we educate by participation and make the school a social institution in the broadest and best sense.

Home projects.—A few years ago, several plans were put into effect giving school credit for home work. It had some vogue in many parts of the land, and was a sincere attempt to correlate the school with home and community life. Recently there has been an attempt to carry on instruction by home projects. This has been confined largely to certain subjects, such as manual training and domestic science, which lend themselves especially to home work. In connection with this work there is

often an exhibit of both home and school work. Every attempt of this kind is an effort to acquaint the general public with what the school is doing, and to encourage the pupils by allowing them to have their effort appraised and appreciated.

Commercial materials.—Some schools make use of materials issued by various industrial and commercial concerns chiefly for the purpose of advertising their business, such as maps, pictures and manufactured products. The purpose of this material is to show industrial processes, the progress of raw material to its finished state. Recently motion picture films have been produced for this purpose. This material is highly informational and enables the child to learn by vicarious experience. It has great value in the schoolroom if properly used.

Work permits.—The compulsory attendance law and the laws pertaining to the issuance of work permits and the laws governing the operations of a juvenile court are all three an illustration of the interrelation of the school with the community. Time was, when compulsory attendance was very much resented, when it was felt to be an invasion of the family rights. In my early school experience I can recall very well the attitude taken by many parents to the effect that it was entirely their affair whether or not they sent the child to school. But to-day society as a whole takes an interest in that

question, and takes the position that it is of concern to the state whether or not the child attends school, and whether mere individual preference shall take precedence over the needs of the community.

The conditions under which children may work are limited but perhaps not so strictly as they should be. There are very definite limitations as to kinds of occupations children may engage in, the ages at which they may begin to work, and the conditions under which they may work, and the number of hours. Beginning with this current year we have been called on to enforce federal provisions in regard to work permits. Heretofore, these permits have been issued solely under the provisions of the state law, but now there are federal provisions which grow out of the fact that there is a tax upon the product of a factory which has been produced by children working illegally. This makes the manufacturer very anxious to comply with the terms of the federal law and it necessitates a careful supervision by school authorities of the granting of such permits.

It is unnecessary to carry this catalogue further. The number of items here might be doubled. Indeed, there are so many of them that it is difficult to know what to omit, but in all these ways, we see the interaction of the school and the community. We see that the school is so much a part of the life about

it that inevitably it will reflect and participate in whatever is happening in the community itself. It seems to me that it is the part of wisdom to recognize this fact and to utilize it—to capitalize it as an educational principle, and to adopt the idea of education through participation, and of the democracy of experience.

A brief quotation from Emerson's *Essay on Culture in Education* summarizes, it seems to me, in a fitting way the attitude we should take toward this subject. He says:

"Let us make our education brave and preventive. Politics is an after-work, a poor patching. We are always a little late. The evil is done, the law is passed, and we begin the up-hill agitation for repeal of that of which we ought to have prevented the enacting. We shall one day learn to supersede politics by education. What we call our root-and-branch reforms of slavery, war, gambling, intemperance, is only medicating the symptoms. We must begin higher up, namely, in Education."

OUTLINE OF THE CHAPTER

A. The school is society's principal educational institution.
   1. It cooperates with other agencies.
   2. It transmits the race inheritance.
   3. It is a constructive social force.

B. Purpose of education determined by sociological conditions.
   1. Complexity of modern life.
   2. Specialization of effort.
   3. Publicity helps coordination.
   4. Social aspect shown by the curriculum.
   5. Attitude toward war work.

C. Sociological aspects of modern schools.
   1. Architecture.
   2. Community uses.
   3. Student organizations.
   4. Special days.
   5. Home projects.
   6. Commercial materials.
   7. Work permits.

D. Education should be "brave and preventive."

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Cronson—*Pupil Self-Government.*
Forbush—*The Boy Problem.*
Hall—*Adolescence.*
Houghton—*Stories and Exercises for Opening School.*

TOPICS FOR DISCUSSION

Illustrate the relationship between the school and the community by showing the kind of education provided in ancient Greece or Rome, or modern China. Does modern society require more from its schools than in former ages? What are "fads"? To what extent should the schools participate in such things as a Red Cross campaign for membership? A Community Chest drive? Clean-up week? Should school authorities have the right to determine whether or not a child can go to work?

CHAPTER IX

SUPERVISION

Social unrest affects education.—The disturbed social condition following the World War has affected education as much as it has other fields, and the universal unrest which seems to be pervading society is influencing education by causing a thorough questioning and scrutiny of all educational activities. It would be folly to deny that there is a certain unrest in the field of education. This affected us during the war. Teachers were uncertain whether they were rendering the largest service to the country by remaining at their posts. A good many teachers sought other fields of activity in the hope that they might make a larger contribution. To a certain extent this tendency still persists. Teachers during the current year have sought other fields of effort and activity. Part of the unrest in the educational world has been due to the over-conscientiousness of teachers and to their anxiety to do their fullest duty.

Supervision a cause of dissatisfaction.—All the

phases of educational thought have been subjected to the scrutiny alluded to above: the course of study, plans of organization, management, administration, and also the plans of supervision. The latter question has caused its full share of dissatisfaction on the part of teachers, and it is important to learn the reasons for this fact, and, if possible, the remedies.

The purpose of supervision.—The most important consideration in connection with this question is to determine the purpose of supervision. No doubt the purpose of supervision changes with education itself and needs to be defined anew with each epoch which shows a distinctive character. No doubt, also, supervision serves more than one function. But on account of the way in which education is organized and conducted to-day one of the chief aims of supervision is "coordination." We know that the field of education is characterized by specialization of effort. We have division of labor in teaching just as we have in the industries. The factory system as it has been developed in America within the past hundred years has applied not merely to the field of industry, but to professional effort as well. The fact has heretofore been pointed out that the other professional fields, such as law and medicine, are conducted to-day along the lines of highly specialized and subdivided effort. Obviously, if each

teacher did all of the work having to do with the education of a given child, or a given group of children, comparatively little supervision would be necessary.

Need of supervision accompanies increasing complexity of life.—This is proved by the fact that in an earlier day when education was conducted without the present division of labor, there was no supervision. This condition exists to-day in certain parts of our country and in certain departments of education. As soon as you begin to divide and subdivide, you gain in efficiency what you lose in unity. That seems a simple principle. It is practically axiomatic, and yet, all through our social and civic life to-day we are profiting by the benefits of specialized effort and are complaining about or suffering from the lack of harmony produced thereby. Every form of organization has its defects as well as its good points, and the defect of specialized effort is, that it is a single track affair, that it must be conducted without as much reference to other lines of activity as might be desirable.

Teachers are becoming specialists.—Many teachers apply for positions in city schools who give as their reason for desiring to work in a large system the fact that they will be able to devote themselves to some particular branch or grade. They are dissatisfied with working in a small system where they

have to teach so many different kinds of work. That is felt to be an impossible situation. So, teachers are more and more tending to specialties. The division and subdivision of their work has gone on until it is easy to appreciate the difference between conditions as they now are and as they were even five years ago. This tendency has not yet fully worked itself out in American education. There will be still more specialization. As long as this is the case it is absolutely essential that provision be made to coordinate the various lines of work, to harmonize them in the interest of the child, and his education. It is an evidence of human limitation that we do not look this fact squarely in the face and accept it as a part of the organized life we are living, but that we should like to have all of the advantages accruing to a specialized form of effort without any of the disadvantages.

Relative values not determined.—The assumption that one type of work in a school system is more important than another or that it is more valuable, or that it should be more highly recognized, is comparatively fantastic. Perhaps there is a difference in the value of service, but no one has yet found any scale or balance fine enough to measure it. About the only principle of differentiation between the kinds of work which can be made with any approach to justice, is the amount and kind of

preparation necessary to prepare one for that particular work. If it takes longer to get ready for one thing than for another, it is perfectly right to value the service accordingly. This is true in other fields and it is fair to have the principle apply in the field of education. There seems to be an assumption in certain quarters that people who are doing supervisory work consider that that work is in some way superior to the work of teaching. This is a great mistake. It is valuable work—it is necessary work, and indeed indispensable, but to say that it is more important than the work of teaching would be a very doubtful assumption.

Administrative work is a distinct field.—The same is true of administrative work. Administrative work is necessary. Problems of finance and organization must be cared for, but certainly if the work of education stopped there the benefit to the rising generation would be very slight indeed. Hence, to say that the work of administration is more important than any other work in a school system is again a very doubtful assumption. The true point of view from which to look at this question is not to decide which one of these lines is superior to the others; but, rather to recognize the fact that all of these departments and divisions are essential to the best results. The work of administration and of supervision is different from teach-

ing. It is not necessarily more important work nor more valuable. It is not necessary for us to make our categories exclusive, and to set up any one type of activity as dominating all of the rest.

To argue the value of one kind of work and to underrate the other is like arguing the relative importance of eating and breathing. One has to do both. The health of the body requires the coordination of its vital functions. In like manner the schools are a highly complex organization. The best results can not be obtained without the harmonious interaction of teaching, and supervision, and administration.

Objections to supervision.—Let us consider briefly some of the objections often made to supervision. Probably the most frequent objection is that there is too much of it. Several years ago a very good primary teacher went to a Pacific Coast city. After she had been there about four months, she came back East for a visit. When asked how she liked her work, she said she liked it very well, except that she felt that the schools were over-supervised. She said that she had not spent an entire day alone with her school in the four months she had been there, and added, "If they would just let me alone for a little while, I would like to show them what kind of primary work I could do." Too much supervision is as objectionable as too much of any commodity.

Supervision should be constructive.—The second general complaint about supervision is that it is not of the right kind; that it is restrictive and tends to be inquisitorial rather than constructive; that it is critical in a negative sense; and that it does not allow sufficient opportunity for the freedom and initiative of the teacher. No doubt there is validity in both these criticisms. In a greater or less degree, there may be too much supervision in certain school systems, and that supervision may not always be of the right type. These criticisms point in a general way to the characteristics of proper supervision; that is, it should be sympathetic, so that the teacher's point of view will be carefully understood and appreciated by the person doing the supervising.

Hence, supervision should be constructive rather than merely critical. A month or two ago I was in an adjoining city where one of the assistant superintendents had come from another system within the past year and a half, and had undertaken supervisory work in the elementary schools. I asked one of the officials connected with that system how this particular supervisor was getting along. I knew that at the time there had been some little feeling on the part of the local people that this supervisor was not welcome. But this assistant superintendent told me that every one in that system was very much delighted, and that they were very much pleased

with the work of this particular supervisor. I asked why that was. "Well," he said, "this person seems to have impressed teachers with the feeling that she is there to help. She places even the most inexperienced teacher at ease, and makes every one glad that she is in the work, and there is never any intimation that she is there for anything but a helpful purpose." I suppose that supervision is always characterized to some extent by this constructive motive, but of course not all supervisors are able to make it thoroughly understood. Supervisors differ just as teachers differ. Therefore they are not always so effective as they should be. Certainly in supervision emphasis should be placed upon the positive rather than the negative.

Supervision should be liberal.—In the third place, supervision should be characterized by freedom and liberality. There should be ample scope for the individuality and initiative of the teacher, and she should be encouraged to work out her own salvation and to utilize her own ideas and strength to the greatest possible advantage.

Supervision should be scientific.—Supervisors should have special training for their work; so that the problems of supervision will be well defined and attacked by an approved method. Supervisors who are truly prepared will not only judge as to the means and methods and results, but will also be

ready to state the principle behind the judgment; and how this principle may be applied to the situation at hand. The modern scientific movement is making a contribution to the work of supervision in that it is helping to a more careful analysis of the problems involved. Its aid should be sought by all who expect to work in this field. But after science has done all that it can this problem will still retain a great deal of the element of human nature because it means that people are going to divide a certain task among themselves, and in order to be successful with it they must cooperate in producing the common result. To get this cooperation is a human problem. To work together with other people to do something is in many respects more difficult than to do it by yourself; and as long as that is true the principal difficulty with this whole question is with the human elements in it rather than with the scientific elements. No matter how well trained a supervisor may be, if he lack the necessary human attitude and the necessary spiritual equipment, he will not be successful as a supervisor. These facts may be somewhat commonplace but they are prerequisite to the satisfactory conduct of the work of supervision.

Attitude of teachers toward supervision.—Consider for a moment the other side of the question. What should be the attitude toward supervision of

those who are being supervised? It is not too much to ask that the same general qualities of sympathy, breadth of view, liberality, and of scientific attainment should be shown by the teacher as well as by the supervisor. In other words, it is just as important that the person who is doing the teaching know what she is about, have a professional attitude toward the work in hand and toward those who are associated with her in that work, as that the supervisor should also possess those qualities.

Teachers should acknowledge their difficulties. —Another obligation resting upon the teacher is to make more use of the supervisors by calling upon them freely for any help which may be needed. Since provision is made to relate the work which one teacher is doing to that of another, this service should be utilized in the most matter-of-fact way. The teacher should not consider it a favor on the part of the supervisor but a part of the day's business. Furthermore, teachers should be a little more free to confide their difficulties, and perhaps even their own faults, than they are. Perhaps this is a council of perfection, and yet if there be a professional attitude on both sides, nothing makes a stronger teacher than to take the frankest possible attitude toward the defects and handicaps that are intrinsic in the situation. The difficulty here is the development of that degree of professional respect

and confidence which will make teachers feel free to ask for help. Teachers often feel that a shortcoming on the part of a child is a reflection on themselves. Yet many of the defects exhibited are no more the fault of a particular teacher than is the color of the child's hair, or the number of pounds he weighs. Teachers should have the right to feel that supervisors realize these limitations and do not expect the impossible.

Teachers should have a scientific attitude.—What is needed is a more impersonal and scientific attitude toward the common work in which both teacher and supervisor are engaged. In general, the attitude of the teacher toward a supervisor or administrative officer should be similar to that which one has toward professional associates whom one respects. It should be the same kind of attitude as that which we have toward a college professor or instructor, whose help and instruction we have prized.

Differentiation should be recognized.—Since we are confronted with the fact that under present conditions school work will be subdivided and different kinds of work will be done by different people, we may well make the best of such condition. Teachers can not perform the essential administrative work of a school system any more than the superintendent of schools can do all of the teaching. It is not that

one kind of work is more important than the other. It is not that one is superior to the other, but it is simply that they are different in kind. They require different training and experience.

Any one who has tried to perform both kinds of work at once has found it difficult to concentrate on pedagogical problems and at the same time give the right kind of consideration to executive problems.

Many principals and supervisors have commented on the trivial character of many of the incidents to which they are obliged to give their attention. At one time I kept a professional journal in which I noted all of the items of professional business—the interviews, the conferences, and the kind of cases that came before me during two years. It was surprising to find how many things there were which in themselves were apparently trivial. Executive business seems to be just a succession of such incidents, and yet they all go in together to make up the success, or lack of it, of the entire organization.

Need of cooperation.—The real solution of this question is in the realization of our relationship to the common work in which we are engaged. Every one of us is but a part of the whole. We are but one factor in the great work which forms our joint task. That work will not be complete without the

effort of every one of us, and without the best effort that we can give. It is not for us to dispute among ourselves about the relative importance of our contribution to the common project, but to maintain a common loyalty to a common work. In order to bring out the necessity of coordination of effort, I have sometimes used as an illustration the great orchestra which with its many instruments produces such marvelous effects. Who shall say that the music of any one instrument is more important than that of any other? If the French horn player should refuse to participate in the selection, unless every one present would admit that his instrument was the most important in the orchestra it would not be received as an evidence of his musicianship. I do not know the relative importance of the instruments in an orchestra. I do not even know whether the leader of the orchestra is the most important person in it, but unless there be leadership—and unless there be expert effort properly coordinated—the great symphony is impossible.

In twentieth-century society and civilization, we must gain a greater vision of the degree of coordination required of us all, and we must be willing to make the necessary sacrifices and adaptations in our own lives and work to bring about that coordination. Supervision of the right type will be a helpful factor to that end.

There is a phrase in the preamble to the Constitution of the United States which sets forth the purpose of "providing for the general welfare." The world greatly needs social conduct dominated by that motive to-day, and the world of educational ideal and endeavor needs it too.

OUTLINE OF THE CHAPTER

A. Social unrest affects education.
   1. Supervision a cause of dissatisfaction.
B. The purpose of supervision.
   1. Need of coordination shown by increasing complexity of life.
   2. Teachers are becoming specialists.
   3. Relative values not determined.
   4. Administration a distinct field.
C. Objections to supervision.
   1. Schools may be over-supervised.
   2. Supervision should be helpful rather than inquisitorial.
   3. Supervision should be liberal.
   4. Supervision should be scientific.
D. Attitude of teachers toward supervision.
   1. Same qualities are desirable as for supervisor.
   2. Teachers should acknowledge their difficulties.
   3. Teachers should have a scientific attitude.
   4. Differentiation should be recognized.
E. Need of cooperation.
   1. Willingness to work for common cause.

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TOPICS FOR DISCUSSION

What is the chief function of supervision? Is the complaint justified that the schools of to-day are over-supervised? What are some of the characteristics of good supervision? Give an example of good or poor supervision from your own experience. What kind of training should a supervisor have? To what extent is the teacher responsible for making supervision necessary? What does supervision cost in comparison with instruction?

CHAPTER X

HEALTH SUPERVISION

Accurate data.—The data supplied by the Selective Service Draft is the most complete and the most valuable information of its kind which has ever been available in the United States. It is an impressive record of the physical unfitness of the young men of America. The conditions revealed by it had been suspected by physicians, social workers and educators, but no one realized how deplorable the conditions were until facts like the following came to light.

Extent of defects revealed.—Thirty-two per cent. of the men examined in the draft were rejected on the first examination as unfit for military service. On re-examination after being in training camps for a while and being under the care of regular army physicians, an additional ten per cent. were rejected. Later on an additional five per cent. broke down under the rigors of the military training and showed that they could not stand severe physical effort. This makes a total of forty-seven per cent. of all

those between the ages of eighteen and thirty-five, who were physically unfit for the military service of their country. The chief defects were as follows: respiratory troubles, throat and lung troubles, heart defects, flat feet, ear, nose and teeth defects, and curvature of the spine.

These facts were so startling that they made a profound impression upon the minds of all thinking people, and to-day there is a general agreement that the work of physical education and of public health must be so improved that our country will no longer be in the condition of having such a large number of men unfit for the national defense.

Same relative amount of deficiency among school children.—A fact interesting to educators is that examinations of school children show about the same percentages of deficiency, and about the same kinds as shown by the draft. Because of this similarity, an analysis of the figures of the Selective Service Draft furnishes a very good basis for dealing with the question of physical education in the public schools. The available figures also show that there is a very much larger percentage of deficiencies in the children of rural and small-town schools than in those of the city systems. This also parallels the experience of the draft officials who rejected a greater number of men from the rural than from urban communities. In attacking this

problem there are two general lines to be followed; through the public health service and through physical education. The former should include adequate provision for the supervision of the health of all school children.

Public health service not adequately financed.—In regard to the matter of public health service, it is a well-known fact among health engineers that the public health bears a direct relation to the amount of money spent on it. Doctor W. A. Evans, formerly Health Commissioner of the city of Chicago, said that you could construct the health curve of any community by getting its health budget. In other words health can be purchased up to certain limits.

Because of failure on the part of the public to realize the importance of the question, most of the Public Health Boards are unable to do their best work from lack of sufficient funds. Modern sanitary science is prepared to accomplish wonders in the way of prevention and in the promotion of health and comfort, but the work costs more than the average community is willing to spend. This points to the need of greater public enlightenment on this subject, and in this work the schools can be of service.

Education must change this condition.—Perhaps the complete solution of the problem will not be

found until the public schools educate a generation of citizens and legislators who will have such a fundamental conviction on health matters that the public health will be provided for. But, if the solution of the question must wait for that day, how long will it take the public schools to produce that kind of generation? Is the work now being done in our schools, in the teaching of physiology and hygiene, in physical training, and in the supervision of health so organized and conducted that it will result in higher standards for the next generation? Have we enough vision in our program of health supervision at the present time to create personal habits in the life of the child, and also to reach out and make the conditions in the community wholesome and hygienic? Several years ago I visited a school where they were said to have remarkable work in hygiene. It was very good work, and I appreciated it very much. As I left the building and went down the street to catch a car, I passed a good many homes where the front yards were full of tin-cans and rubbish, and the streets were running rivulets of filth. The contrast between what was going on in school with the condition of the front dooryards of the people who lived near the building was very striking. Is it not fair to expect that the instruction which children receive in school will make them sensitive to unsanitary environment?

Relation of health to education.—It is self-evident that education depends to a very large extent upon health and physical well-being. Repeated absence from school on account of illness soon becomes a real handicap to securing an education; and a weak body prevents the fullest use of a trained mind. Hence to make education as effective as possible, all remediable defects should receive attention.

Economic loss.—Figures are presented in *The Hygiene of the School Child,* by Terman, showing the economic loss due to preventable illness. The author estimates a loss of ten per cent. of all the money spent for instruction in the public schools in one year. This would amount to a large sum—several million dollars—a sum which might much better be saved or spent in caring for the health of the children.

Relation to compulsory attendance.—Another important factor entering into this question is the change which has been brought about by compulsory attendance laws. I am sure that experienced teachers who can recall the days when we did not have the compulsory school attendance realize the difference caused by the bringing into the schools of thousands of children who prior to that time did not attend school at all. The result is that our schools are filled with children with all kinds and degrees

of physical incapacity because they are compelled by the state to come. Hence the operation of the compulsory attendance law places the burden upon the school either to take care of these defects and help to remedy them or see to it that parents do so. The following statement from Professor Terman's book on *The Hygiene of the School Child* shows the extent of non-epidemic defects among the twenty million school children of the United States. He says that not far from two million (*i. e.,* ten per cent.) are suffering from a grave form of malnutrition; ten million or fifty per cent. have enough defective teeth to interfere seriously with health. At least ten per cent. more suffer from obstructed breathing due to enlarged tonsils. Ten per cent. more have cervical glands which need attention, many being tubercular. At least fifty per cent. have been infected with tuberculosis, of whom about ten per cent. will later succumb to the disease. Twenty per cent., or four million, have defective vision; over five per cent. have defective hearing, and about five per cent. have spinal curvature. Not far from five and one-half per cent. have organic heart disease. You will see that this list of defects corresponds relatively to that given earlier in the chapter, but it presents more definitely the seriousness of this problem.

School conditions may be detrimental to health.

—The bringing together into as close proximity as is necessary in school life of large numbers of children increases the danger of infection and contagion, and would tend to increase all diseases unless special precaution and effort were taken to reduce them by using the proper sanitary measures. This points to one phase of our work; *i. e.,* the avoidance of contagion and the reduction of disease. In addition to this the school can aid in the matter of physical defects by pointing them out to the home and securing cooperation in obtaining the necessary treatment. Also, the school has a distinct duty on the material side, in matters pertaining to the character of the building, light, heat, ventilation, water supply, plumbing, and all of those things which go together to make up a wholesome and sanitary environment.

Schoolhouse planning is becoming a highly specialized science.—Designing is keeping pace with the educational needs of the modern school and also with the discoveries of science in relation to light, heat, ventilation, sanitation and other matters. In some of the states, the requirements have been embodied in a code of laws, which prescribe the character of design and construction for school buildings. The school board of the city of Indianapolis has published a pamphlet entitled *Standardized Requirements for Elementary Schools.* This

contains many helpful and suggestive details which should be considered in planning an efficient building.

Relation of architects to this problem.—The planning of school buildings has also been improved by the great degree of cooperation between architects and school officials. Architects are beginning to see that the best planning takes the work of the school fully into account, and that before they can plan a schoolhouse they need to know the kind of work which is to be conducted there. A great contribution to this subject has been made by a committee of the National Education Association, which has worked for several years and has issued reports embodying the essential features for both elementary and high schools. This material is available to any one who is interested and there is very little excuse for any community erecting a school building to-day that is not entirely adequate from an educational as well as from a hygienic standpoint.

There are two general plans for handling health supervision in schools; either under the local board of health, or the school board. The work may be entirely successful under either management, provided it is given sufficient financial support and is competently handled.

The school nurse.—General experience proves that a school nurse is of more value than a school

physician. That which needs to be done in the school is not so much the diagnosis or treatment of disease as such, but is the application of the laws of hygiene to the end that correct health habits may result. The nurse has been more effective in securing the actual carrying out of these things than the physician.

It is unnecessary to call attention to the fact that modern school systems make a good many provisions for different classes of children based on their physical characteristics, or defects. For the under-nourished children, there are provided the school lunch and in some cases open-air rooms. For those with tubercular tendencies, we have the open-air school and all that goes with it. In many city systems there are special classes for children with defective sight or hearing and also for crippled children. So, gradually the public school is adjusting itself to the physical needs of the children who are at once the subjects and objects of education.

The teacher's duty.—I should like to say just a word or two in regard to the teacher's relationship to this problem. No matter how effective the system of health supervision or medical inspection may be, the fact that the teacher has a better acquaintance with individuals than any one else points to the necessity of a certain amount of responsibility being assumed by her. The teacher must bring the need

of an individual child to the attention of the principal, the nurse, the school doctor, or the parent, or to all of these. The time has long passed when it is permissible for any child to labor under a prohibitive physical handicap. Formerly it was felt that these things were individual matters, and that it was the family's business to attend to them. To a certain extent, of course, that is true, and it is undesirable that this matter should ever become entirely a public problem. On the other hand, it does seem that even in matters as intimate as physical welfare and health, there is often need for help from an outside source. Just as the men who went into the army did not particularly welcome the various inoculations which they were given in order to prevent disease, so there is often resentment at what is considered an interference with the freedom of the individual. Yet as a matter of fact, typhoid was practically eliminated among the soldiers in the last war, and smallpox was eliminated. There were certain diseases which simply did not exist among the soldiers in the last war and there can be no doubt that the reason was that preventive measures were adopted. Parents are often unconscious of a condition, or if conscious of it, they are perhaps deferring it to a more favorable time, or may be simply putting off what they know to be unavoidable. A friendly word from some one who is interested in

the child is often an encouragement to do that which the parent knows should be done. Therefore under the best system of inspection and supervision there is still the obligation on the part of the teacher to be concerned with the child's physical welfare.

Physical education.—The problem of physical fitness will not be solved without an adequate program of physical education. This has not yet been developed, though great improvement has been made in recent years. The old idea of physical training was that gymnastics and formal drill was the essence of it. To this has been added the idea of play, games and sports, which develop coordination and control as well as strength; and which also develop many valuable moral qualities.

But in two respects the work of physical education is still wanting. It is not based on a careful examination of each child, and hence can not meet his needs; and it has no definite objectives, but only general purposes. Until these are supplied, the results of the work will be uncertain.

The duty of the school in regard to the health of the child can very well be summarized in three points: first, the furnishing of wholesome and healthful surroundings and environment; second, supplying such instruction and supervision as will prevent or remedy pathological conditions; and third, carrying out such a program of physical

training as will result in proper growth, development and health habits. If we can bring about these conditions, we may feel well satisfied that the wealth of the nation as represented by the health of its boys and girls will be conserved.

This is a problem not merely of building up the individual in the matter of the practise of personal hygiene but of carrying over into the larger life of the community standards of physical well-being which will be a resource to the nation.

OUTLINE OF THE CHAPTER

A. Data of Selective Service Draft most valuable.
   1. Extent of defects revealed.
   2. School children have same relative deficiency.

B. Public health service not adequately financed.
   1. Education must change this condition.

C. Education depends upon health.
   1. Economic loss.
   2. Relation to compulsory attendance.
   3. School conditions jeopardous to health.
   4. School buildings scientifically planned.
   5. Duty of architects.
   6. The school nurse.
   7. Special classes.
   8. The teacher's duty.

D. Physical education.

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TOPICS FOR DISCUSSION

Why is the health of its pupils the concern of the school? Can the school assist in promoting public health? In what ways? Which is the more important, health supervision or physical education? Is the present-day teaching of hygiene effective? Can you point to an improvement in community health conditions due to the work of the school? Is it better to have school health supervision in charge of the Board of Health or of the School Board? How much is spent by your community on public health? How much per pupil for health supervision?

CHAPTER XI

PUPILS' MARKS AND PROMOTIONS

School marks are a part of educational machinery.—The question of a suitable marking system is an old one in the educational world. There have been a great many discussions as to whether or not children should be marked in their work, and if so, what kind of a plan should be employed. In spite of all the discussions, most school systems continue to estimate the work of their pupils in some way. Not only is the pupil's progress through the schools determined by his marks, but to a great extent his admission to higher institutions of learning is based on this same record.

Marks are needed for pupil's encouragement.—There seems to be a real need that some record should be made of the pupil's accomplishments. It seems to satisfy a need of the pupil for recognition and encouragement. While the pupil is not supposed to work for marks, still if required to work without obtaining any expression from the teacher as to the result of his work, it is very discouraging. Even

with older students, there seems to be a need of some recognition of effort outside of the self-satisfaction one takes in what he knows he has accomplished. I recall very well that about the middle of my college course, our school gave up the idea of any grades. We were notified at the close of each semester whether or not we had passed in our courses. We were supposed to be sufficiently self-dependent not to need any incentive to stimulate our activity. At first we thought this was all right. It was a matter of indifference to many of us whether we received any marks or not. But soon we began to perceive that at the close of any term, the majority of the pupils passed in their courses. A few, perhaps, did not pass, but by far the larger majority passed, and we began to realize that a great difference existed in the amount of effort which had been put forth by the pupils who were in this group. We felt that the institution should take some cognizance of this. In other words, there was a strong tendency to feel that unless the institution cared to set a little premium on application and attainment, the individual might possibly be content to do just enough to get along and satisfy the requirements. Perhaps that is not an ideal attitude, but certainly it is a very human one. Since that experience I have believed that schools should have some system by which effort and accomplishment might be recognized.

Difference in teachers' standards.—There are several difficulties in connection with any marking system. One of the chief ones is a variation in individual teachers. Let me give you a little quotation from Bennett's *School Management.* He says: "In every high school, college, or other institution where departmental teaching prevails, nothing is better established than that some teachers are chronically severe markers while others are notoriously easy. One will characteristically year after year report about thirty per cent. of every class A's and perhaps twenty per cent. C's, while another dealing with the same identical pupils will perhaps run about five per cent. A's and seventy per cent. graded C or lower. The high grades of the one may be interpreted as signs of thorough teaching or of slack examining, and the lower grades of the other as an indication of poor teaching or of severe testing." All teachers are familiar with this matter of individual variation. It does not at all imply insincerity, nor favoritism, nor anything unfair. Rather, it implies a difficulty that is intrinsic in the very nature of the rating of accomplishment, and it is the problem of school management to remove that difficulty if it be possible.

Most marks are quantitative.—A second set of difficulties arising under almost all marking systems is that they are quantitative rather than qualitative;

i. e., they emphasize subject-matter, or knowledge of facts, and the acquisition and retention of a certain quantity of knowledge or information. It is very seldom that a marking system can be devised which takes account of effort, or if effort be included, then it does not take account of the relation of the attainment to the child's ability or capacity. It may be that if measured in terms of ability, a grade of seventy-five per cent. attained by one pupil would mean a very much higher achievement than that of ninety per cent. attained by another. Yet the ordinary marking system does not show the relation of attainment to ability. If the question be raised, why not let the marking system be quantitative, why not let it take account chiefly of subject-matter, the point at once arises that the subject-matter is not standardized. Even under the same course of study, the administration will vary so in different schools and under different teachers that a quantitative marking would result in a very great lack of uniformity. While uniformity may not be necessary if what we are doing is trying to rate or measure something, it is important that we should measure it as accurately as possible. It would be absurd to have the measurements of material quantities measured by different standards in different parts of a city or state. If a yard in the western part of Illinois were thirty inches, thirty-four inches in the north,

thirty-eight inches in the east, and something else in the southern part a yard would not mean much. In other words, in so far as the marking question is a question of measuring results, it ought to be as nearly accurate as possible.

Purpose of marking system is constructive.—One of the first things that should be considered in regard to a marking system is its purpose. It seems to me that the purpose is primarily a constructive one; *i. e.*, the correction of defects and the removal of handicaps and deficiencies on the part of the child. In other words, the marking system should be an educational device in a positive sense, rather than a merely critical or negative affair. It is very important to determine which of these two phases shall be emphasized, because this will determine what kind of marking system shall be used.

The per cent. system.—Let us review briefly some of the principle systems of marking. The most common, of course, is the per cent. system. Pupils are marked in any exercise or any subject on the basis of one hundred per cent. for perfect work. This is probably the most widely used plan to-day, and it is a system which has been in vogue for many years. We may agree that there is a vague common understanding as to what is implied by this per cent. system, but there are a great many variable elements which enter into it. Suppose a pupil is

marked fifty per cent. on some lesson or exercise. Does it mean that he knows fifty per cent. of what was assigned him, or fifty per cent. of that which was acquired by the brighest pupil? Until these questions are decided, a fifty per cent. mark simply means that you have measured this pupil's work by some kind of a yardstick, the length of which is not definitely determined.

The literal system.—An attempt has been made to improve the per cent. system by adopting a system of letters—A, B, C; or, A, B, C and D. This is largely for the purpose of getting a larger category, on the assumption that children can thereby be more accurately grouped. If the groups are made larger, it does not necessitate a teacher's distinguishing between eighty-three and one-half per cent. and eighty-three and three-fourths per cent. As a rule, however, the letter system has been translated into per cents., so that A means grades of ninety to one hundred, B eighty to ninety, or other definite equivalents. So long as the per cent. idea is still the basis of the grading, not very much is gained, for there is still the difficulty of the uncertainty as to what an A really means.

Qualitative marks.—A third plan is to use a series of terms such as Good, Fair, Poor, Excellent, etc., attempting to use qualitative words descriptive of the work itself. This system usually works

very well when it is first adopted as a substitute for a per cent. or more mechanical system, but the difficulty with it is that in the course of time it becomes routinary and the words themselves begin to get a special meaning. With this in mind teachers have marked pupils "Good plus" and "Fair minus." Whenever that point is reached, the per cent. system might as well be used.

Passing or failing.—Some schools have adopted the system of grouping the pupils into two classes—pass or fail, with no attempt to differentiate within the two groups. This plan is not very widely used, and as a rule is found unsatisfactory for the reason given above.

Relative ranking.—The fifth plan is one which is more and more coming into use. It is the idea of relative ranking and the use of any system in conjunction with what can be determined about group attainment. As shown in the chapter on Individual Differences, there are about one-half of every class or group who are of average or medium attainment as compared with the rest of the group; ten to twenty per cent. who are very good; and five to ten per cent. excellent. There are about the same number below the average, divided into poor and very poor. This indicates that on taking any group by itself, about half of that group will be of average intelligence or ability, and the other fifty per cent. will

be divided almost equally above and below the middle point of the group. The principle of relative ranking is simply this. The teacher shall grade half her class as of average or medium attainment; one-fourth of it superior, and one-fourth of it inferior. It is possible, of course, under special conditions to have groups that do not exactly bear out these proportions, but in a vast majority of cases if this principle be used, the grading will be much more accurate than if based entirely on an individual basis.

Standard tests.—There is this help to be obtained from intelligence tests and standard tests. For the most part these tests deal with a single line of ability or attainment, rather than with varied and complicated abilities. There is, of course, the added advantage that the tests themselves are standardized. By "standardized" we simply mean that they have been used a certain number of times until the tests themselves come to have known value. Two tests of equal worth might be devised, but if one were used with fifty thousand children and the results tabulated, and the other were not used at all, then for the purpose of a criterion, the test which had been standardized through use would be of very much more value than the other.

Rating of formal work.—An important problem in connection with this grading matter is to what extent shall the more mechanical subjects be taken

into account in grading the content subjects: *i. e.*, how much shall be marked off in history for poor spelling, or for poor manuscript form, or for poor penmanship? This is a subject that troubles departmental and high-school teachers very much. There are all shades of opinion from those who might be called standpatters who say that the teacher of history can not concern herself at all with the spelling, has not sufficient time as it is, and if she stops to teach spelling, will never get any history taught. There is the other extreme view upheld by the one who takes the position that no mistake of any kind should ever be allowed to go unchallenged by any teacher. The true position is doubtless somewhere between these two extremes.

Differences among teachers.—Another difficulty is that of having the grades mean the same thing to various teachers. About two years ago, an experiment* was conducted in order to show the wide variety of grading among teachers. A certain examination paper in geometry was sent out by the North Central Association to two hundred different high schools that were members of the North Central Association. These schools were asked to have one of the geometry teachers grade that paper and mark it on the basis of one hundred per cent. The replies received were from one hundred and sixteen

*Monroe, *Measuring the Results of Teaching.*

teachers who marked this same paper all the way from twenty-nine per cent. to ninety-two per cent. There were thirteen teachers who marked it seventy-five, three who marked it seventy-six, two above ninety, one marked it below thirty, forty-seven gave it a passing grade (seventy-five or above), and sixty-nine considered it not a passing paper. Geometry is a fairly definite subject. If this had been an English paper, or a history paper, or some similar subject, what might have been the result? This seems almost fantastic. It seems impossible. A study of this sort shows almost too much. It would tend to prove that the per cent. system is entirely unworkable. Of course, it may be said that such a test is not fair. The teachers did not know the pupil, nor the work on which the questions were based, and had no background upon which to estimate the work except the mere quantity of information on the paper. To some extent such a test is not entirely fair, because undoubtedly the teacher could estimate the work of her own pupils very much more correctly and fairly than could be done under those conditions. But it shows the degree of variation under a system which has been considered definite.

Indefiniteness of report card.—A third problem that arises in connection with grading is that the parent who receives the report is usually given no guidance or suggestion as to what should be done

about it. In other words, unless the parent makes a special effort to have a consultation about the case, the report itself is usually not very indicative of what is the matter. When the child comes home with a low grade, as a rule the grade itself does not indicate very much about the solution of the trouble. Some of the inequalities which arise in grading may be illustrated by this kind of a case. Two children in the same family bring home grades. One has eighty-eight in arithmetic and the other ninety-three, but the former was the highest mark given in one class while the latter was below the average given in another class. The eighty-eight per cent. would represent far better work, but the parents would have no means of knowing this, not having the facts in regard to the marks of the entire class before them. Such a situation might easily result in the pupil having eighty-eight per cent. receiving a reprimand, and the one having ninety-three per cent. being commended and held up as an example to the other. Such a situation is not at all improbable.

Characteristics of a suitable report.—The following points should be covered by a report card. It should satisfy the pupil's sense of fairness and encourage him in his work; it should give the parent an idea of the pupil's progress in comparison with the rest of the class; it should show the nature and cause of failure, and the manner in which the home

can cooperate; it should not be perfunctory in tone, but should impress the parents with the fact that the teacher is interested in the child's progress and is working hard to further it.

These points may be difficult to incorporate in the report, but they are possible, and they are greatly to be desired. Such a report would have a good effect not only upon the pupil and the parents, but on the teacher as well. It would stimulate the teacher to a sympathetic interest and keep her from becoming routinary.

Relation of reports to promotions.—The subject of promotions is related to that of pupils' marks because the marking system may retard or accelerate the progress of a child. If too mechanical a system is used, the pupil may be sacrificed to the exigencies of the system. The question of flexibility of promotion has been discussed in the chapter on Individual Differences, and no repetition is necessary. A study recently made in a large city school system shows that approximately forty-one per cent. of the elementary children are making slow progress; forty-three per cent. normal progress, and fifteen per cent. rapid progress. If this condition is typical there is evident need for a more careful handling of the whole question.

Progress should not be impeded by avoidable obstacles.—Slow progress is not entirely an evil

since it must be considered in relation to what the child is accomplishing, and what is being demanded of him. But the school should be very sure that no artificial barriers are being placed in the child's way, such as improperly adjusted courses of study, poor teaching, improper grading, or inadequate materials. Under normal conditions only about fifteen per cent. of the children should be making slow progress, and if there are more than that, it is an indication that the entire question needs study and the employment of new plans of teaching and organization.

OUTLINE OF THE CHAPTER

A. Marks not a new question.
   1. Needed for pupil's encouragement.
   2. Difficulties encountered.
      a. Different standards of teachers.
      b. Most systems are quantitative.
   3. Purpose should be constructive.

B. Various systems of marking.
   1. Per cent. system.
   2. Literal system.
   3. Qualitative marks.
   4. Passing or failing.
   5. Relative ranking.
   6. Use of standard and intelligence tests.

C. Problems of grading.
   1. Rating of formal work.
   2. Differences among teachers.

3. Indefiniteness of report card.
4. Characteristics of a suitable report.

D. Relation of promotion to reports.
1. Large amount of slow progress.
2. Progress of pupil should not be impeded by artificial barriers.

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TOPICS FOR DISCUSSION

What do you consider the best marking system? Will pupils work as well if they are merely marked "passed" or "failed"? Should a teacher change a child's mark if the pupil or parent protests that the mark is not fair? Should a teacher deliberately mark her pupils low at the beginning of a term in order to "make them work"? How much should the final examination count in relation to the daily work in making up the final average? Is a teacher who gives high grades apt to be a better teacher than one who is known as a "low-marker"?

CHAPTER XII

SCHOOL BUILDINGS AND EQUIPMENT

Material side not most important.—The first thing that should be said on this subject is that the material side of education is not the most important concern, just as it is not the most important side of life.

There are many examples of splendid schools of all kinds which have done a noteworthy work in simple surroundings. The absence of elaborate, completely equipped buildings has not prevented some of our most successful institutions from a remarkable accomplishment in an educational way. This fact is illustrated in nearly every town. Many excellent schools are doing splendid work, yet they are housed in buildings that are inadequate in many respects.

Hence, the material side of education is not of as great concern as the intellectual and moral side. However, this does not mean that the subject of buildings and equipment should be neglected. Just as people are happier and better off, and as the com-

munity is more advanced if the homes and the workshops and the other buildings are comfortable and sanitary and well adapted to their uses, so the school is better off if it is properly housed and equipped.

School architecture is a modern development.—It is interesting to note that the ancient civilizations which reached a high degree of excellence in architecture have left us no notable examples of school architecture. The classic buildings of ancient times, and of the medieval ages, are chiefly ecclesiastical in character. The earliest schools were more like churches than anything else. It is only within the last few years that school architecture has become a science in itself. To-day there are school architects who devote their entire time and ability to the planning of schoolhouses, and there is now a literature of this subject which treats it fully.

For several years past the National Education Association has maintained a committee on schoolhouse planning. This committee has published reports which are of very great value. These reports present certain standards of schoolhouse construction and design. These standards were obtained by averaging the measurements of buildings and rooms already in existence which were regarded as satisfactory by the people who were using them. A large number of buildings were studied and measured, and the standards were set up from that study.

Copies of these reports may be obtained by writing the secretary of the National Education Association, Washington, D. C.

Building should be adapted to use.—One of the first requisites of a schoolhouse, as of any other building, is that it should be adapted to the use which it is intended to serve. This seems quite axiomatic, and yet there are many examples in America of schoolhouses consisting of nothing but class-rooms. Within the last few years especially, the schools have felt the need of a different kind of provision. This has come about partly through the socialization of the school, through the use of the school as a community house, and through the introduction into the curriculum of lines of work such as manual and household arts, which require special provision.

One of the leading features of modern schoolhouse planning and construction is the factor of safety. The question of the type or class of the construction of the building, the number of stairways, the width of the stairways, the number of stories high which may be permitted, the question of the proper light, of heating and ventilating, and proper sanitary equipment—all of these are of comparatively recent concern, and the desirable requirements under each head are becoming standardized.

In order to adapt the school building to the purposes which it is to subserve, let us consider briefly

the kinds of activity carried on in the modern school. First of all are the academic studies. These require class-rooms or session rooms with comparatively few special features. The principal requirements for such class-rooms are adequate cubic capacity for the number of children housed, adequate light in order to work without injurious effort, and suitable heating and ventilation for the conservation of the pupil's health. In addition to this certain equipment is needed such as blackboards, and various forms of apparatus for the teaching of the different subjects.

A second line of work for which the modern school must provide is physical education and health conservation. This involves some provision for physical training both within the building itself and on the playground. For the most part this work takes the form of organized play rather than formal physical exercises which are sometimes thought of as the chief agency of physical training. If possible, the building should contain a room which may be used both for class work in physical training and also for indoor games. Such a room may often be obtained by combining it with the assembly hall or auditorium. In addition to this the building should contain, if possible, a rest room and a room for such inspections as need to be made by health authorities.

The third line of modern school work is manual

training and domestic science. These subjects are now well established as part of the American school curriculum. In order that they may be carried on effectively a special room for each of these branches should be provided. This room should contain the special equipment needed for the work and for which the ordinary class-room would not be adapted.

The above are the chief needs from the standpoint of instruction. There are other factors relating to administration and the general conduct of the work which are also important.

Indiana sanitary schoolhouse law.—In many states these matters have been the subject of legislation and acts have been passed setting up standards of requirement for all the features above indicated. One of the most progressive of these acts is the Indiana Sanitary Schoolhouse Law passed in 1911 and amended in 1914. The following quotations from this law are self-explanatory and will indicate the high standard which the state of Indiana has set for the construction of her school buildings.

6616a. *School Grounds and Houses, Rules Regulating, Sanitary Measures.*—1. That after the going into effect of this act all schoolhouses which shall be constructed or remodeled shall be constructed in accordance and conform to the following sanitary principles, to-wit:

(a) *Sites.* All sites shall be dry, and such

drainage as may be necessary to secure and maintain dry grounds and dry buildings, shall be selected and supplied. Said site and said buildings or any additions to present buildings, shall not be nearer than five hundred (500) feet to any steam or interurban railroad, or livery stable, except in the case of vocational schools, and except in cases where the limitation shall be waived on approval of the superintendent of public instruction and secretary of the state board of health; or nearer than five hundred (500) feet to any horse, mule or cattle barn used for breeding purposes; or any noise-making industry or any unhealthful conditions. And when such school building or school site is so located and established no livery stable, horse, mule or cattle barn used for breeding purposes, or any noise-making industry or any unhealthful conditions shall thereafter be constructed, erected or maintained within five hundred (500) feet of any school building, school site or school grounds. Good dry walks shall lead from the street or road to every schoolhouse and to all outhouses, and suitable playgrounds shall be provided.

(b) *Buildings.* School buildings, if of brick, shall have a stone foundation, or the foundation may be of brick or concrete: provided, a layer of slate, stone or other impervious material be interposed above the ground line, or the foundation may be of vitrified brick and a layer of impervious material will not be required. Every two-story schoolhouse shall have a dry, well-lighted basement under the entire building, said basement to have cement or concrete floor, and ceiling to be not less than ten

(10) feet above the floor level. The ground floor of all schoolhouses shall be raised at least three (3) feet above the ground level and have, when possible, dry well-lighted basement under the entire building and shall have solid foundation of brick, tile, stone or concrete, and the area between the ground and the floor shall be thoroughly ventilated. Each pupil shall be provided with not less than 225 cubic feet of space, and the interior walls and the ceiling shall be either painted or tinted some neutral color, as gray, slate, buff or green.

(c) *Lighting and Seating.* All schoolrooms where pupils are seated for study shall be lighted from one side only, and the glass area shall be not less than one-sixth of the floor area, and the windows shall extend from not less than four (4) feet from the floor to at least one foot from the ceiling, all windows to be provided with roller or adjustable shades of neutral color, as blue, gray, slate, buff or green. Desk and desk seats shall preferably be adjustable and at least twenty per cent. (20%) of all desks and desk seats in each room shall be adjustable and shall be so placed that the light shall fall over the left shoulders of the pupils. For left-handed pupils desks and seats may be placed so as to permit the light to fall over the right shoulder.

(d) *Blackboards and Cloakrooms.* Blackboards shall be preferably of slate, but of whatever material, the color shall be a dead black. Cloakrooms, well lighted, warmed and ventilated, or sanitary lockers, shall be provided for each study schoolroom.

(e) *Water Supply and Drinking Arrange-*

ments. All schoolhouses shall be supplied with pure drinking water, and the water supply shall be from driven wells or other sources approved by the health authorities. Only smooth, stout glass or enameled metal drinking cups shall be used; water buckets and tin drinking cups shall be unlawful and are forbidden, and whenever it is practicable, flowing sanitary drinking fountains which do not require drinking cups shall be provided. All schoolhouse wells and pumps shall be supplied with troughs or drains to take away waste water, and under no conditions shall pools or sodden places or small or large mudholes be allowed to exist near a well. When water is not supplied at pumps or from water faucets or sanitary drinking fountains then covered tanks or coolers supplied with spring or self-closing faucets shall be provided.

(f) *Heating and Ventilation.* All schoolhouses hereafter constructed or remodeled, shall be supplied with heating and ventilating systems. Fresh air shall be taken from outside the building and properly diffused without draughts, through each schoolroom during school session. Each schoolroom shall be supplied with foul air flues of ample size to withdraw any foul air therefrom at a minimum rate of eighteen hundred (1,800) cubic feet per hour for each two hundred and twenty-five (225) cubic feet of said schoolroom space, regardless of outside atmospheric conditions; and heaters of all kinds shall be capable of maintaining a temperature of seventy (70) degrees Fahrenheit in all schoolrooms, halls, office rooms, laboratories and manual training rooms, in all kinds of weather, and maintaining in

each schoolroom a relative humidity of not less than forty per cent.: provided, that when artificial ventilation, by use of fan or blower, is adopted, the provision as to entrance of fresh air shall be from outside of the building.

It is hereby made lawful for any township trustee, board of school trustees and boards of school commissioners to establish and maintain open-air schools, and when such open-air schools are established the provisions of this act governing heating and ventilation shall not apply to such open-air schoolrooms.

(g) *Water-closets and Outhouses.* Water-closets, or dry closets when provided, shall be efficient and sanitary in every particular and furnished with stalls for each hopper or place; and when said water or dry closets are not provided, then sanitary outhouses, well separated for the sexes, shall be provided. Good dry walks shall lead to all outhouses and screens or shields be built in front of them. Outhouses for males shall have urinals arranged with stalls and with conduits of galvanized iron, vitrified drain pipe, or other impervious material, draining into a sewer vault or other suitable place approved by the health authorities. Any agent, person, firm, or corporation, selling, trading or giving to any township trustee, school trustee or board of school commissioners, any materials, supplies, sanitary apparatus or systems, which when constructed or remodeled or installed, in or for any schoolhouse hereafter constructed or remodeled, which does not in all respects comply with the provisions of this act, shall be guilty of a misdemeanor

and upon conviction thereof, shall be fined in any sum not more than five hundred dollars ($500.00), to which may be added imprisonment in the county jail for any determinate period not more than six (6) months and shall be punished by a further fine of not less than five dollars ($5.00) for each day he shall fail to comply with any order of any court having jurisdiction for the correction of any such defects in such schoolhouses hereafter constructed or remodeled; and any money claim for the construction or remodeling, or for any materials, supplies, sanitary apparatus or systems furnished or constructed in or for any schoolhouse hereafter constructed or remodeled, which does not in every way and in all respects comply with the requirements of this act, shall be null and void. This act amends Section 6616a of the Revised Statutes of 1914.

6616b. *Temperature, Uncleanliness, Teachers, Penalties.*—2. Whenever, from any cause, the temperature of a schoolroom falls to sixty degrees Fahrenheit or below, without the immediate prospect of the proper temperature, namely, not less than seventy degrees Fahrenheit, being attained, the teacher shall dismiss the school until the fault is corrected; and it shall also be the duty of all teachers to immediately send home any pupil who is perceptibly ill in any way, or who is unclean and emits offensive bodily odors or who is infested with lice or other vermin; and the truant officer shall arrest and prosecute parents or guardians who do not rid their children of vermin and bodily uncleanliness, when notified to do so. Refusal of parents or guardians to free their children or wards of vermin

or to bathe and cleanse them, making them fit to go to school, shall be punished by a fine of not less than five dollars and imprisonment for ten days or both. And if the refusal or neglect of parents or guardians to bathe and cleanse their children or wards makes it necessary, then the truant officer, upon order of the school authorities, shall have it done, the cost to be paid by the school authorities from the school funds. Whenever diphtheria, scarlet fever or other contagious and infectious diseases break out in any school, it shall be the duty of the township trustee, school board, school trustee or the school authority or authorities having control, to have medical inspection made of the pupils, and all found in any degree ill, shall be sent home and there retained until the local health officer gives a certificate of health, then such child may be again admitted to school. It shall be unlawful for school authorities to employ teachers or janitors who are not able-bodied or who are intemperate or are addicted to drugs or who have tuberculosis or syphilis. All schoolhouses shall be specially cleaned and disinfected each year, before they are used for school purposes. The cleaning shall consist in first sweeping, then scrubbing the floors, washing the windows and all woodwork, including the wooden parts of seats and desks, and the disinfecting shall be done in accordance with the rules of the state board of health. Township trustees, school boards and boards of school commissioners who neglect or refuse to obey the provisions of this section, shall be fined in any sum of not less than ten nor more than one hundred dollars, and each said refusal or neglect shall constitute a separate offense.

In addition to the requirements above indicated, there are also requirements of the state board of health and the state fire marshal and in many municipalities there are local ordinances setting up additional requirements. All these are designed to improve the efficiency of the building and to safeguard the life and health of the pupils and teachers. They have resulted in a great improvement in the character of school architecture.

National Education Association standards.— Another interesting set of standards are those worked out by a committee of the National Education Association. This committee investigated a large number of buildings of a good type and arranged the floor space in a table containing the following items: instruction, administration, stairways and corridors, accessories, flues and construction. The committee also indicated the proportion of floor area in each story of a building which should be devoted to the above mentioned purposes. These percentages are as follows:

Instruction	50%
Administration	12%
Stairways and Corridors	20%
Accessories	3%
Flues	5%
Construction	10%

These per cents. show the division of floor space

which should exist in a well proportioned school building and the following of this table will enable any school district to obtain buildings which are well adapted to the uses for which they are intended.

Community center.—In addition to the school needs which the building subserves, there are certain community needs which are coming to be recognized as the legitimate province of the public school building. Such uses are for neighborhood meetings, improvement clubs, parent-teacher organizations and for general social center purposes. Such uses of the school building are very desirable because they assist in forming a connecting link between the school and the community. They keep the parents and patrons in touch with school life and school needs and are an important factor in producing that community interest so essential to the success of democratic institutions. In general, any community use of the building should be encouraged which does not interfere with regular school work.

Furniture and equipment.—The furniture and equipment of a school is of importance because it has a bearing on the health and physical well-being of the pupils as well as upon the effectiveness of their work. Great harm may be done by improper kinds of school furniture and insufficient provision for proper ventilation and other prerequisites to good work. Great improvement has been made in

these directions in recent years. This improvement is especially noticeable in the matter of lighting and ventilation. A visit to a schoolroom of the older type will usually reveal the fact that there were not enough windows to furnish a sufficient amount of light and that the windows were not properly placed. Nearly all of the older schoolrooms had windows on at least two sides so that cross-lights and shadows were produced. There are even rooms where pupils are obliged to face the light which is exceedingly detrimental and injurious. The modern plan is to place all windows on one side of the room and to arrange the seats so that the light will be upon the left of the pupils. Ordinarily sufficient light will be supplied if the area of glass in the windows is equal to one-sixth of the area of the floor.

Window shades.—Another phase of this question is the matter of window shades. Windows which are exposed to the direct light of the sun must be shaded at certain portions of the day. It is very common for the shades to be drawn in such a way as to exclude most of the light from the room. It is seldom that the shades of a schoolroom are properly adjusted. This is no doubt due to the fact that those in the room are unconscious of the lack of sufficient light and are neglectful of a systematic plan of managing the shades so as to afford sufficient light without direct sunlight.

Ventilation.—Formerly ventilation was obtained chiefly through the windows. The air obtained in this way is usually fresh but it is not heated and produces harmful effects when blowing directly upon the pupils. Modern systems of forced ventilation attempt to correct these disadvantages. At present the greatest defect in the artificial systems is in the distribution of the air. Frequently it is admitted to the room in sufficient quantity but in a single stream so that it produces a current of fresh air in one part of the room but leaves dead air places in other parts and thus ventilates only partly. However, continual progress is being made with this question and no doubt the problem of distribution of fresh air will soon be solved.

It is always possible to place window boards in the windows and thus provide for a certain amount of fresh air without producing drafts. This is much better than direct window ventilation and is very satisfactory as a substitute for artificial systems if they are not available.

School furniture.—Another splendid modern improvement is the adjustable seat and desk. It is possible by the use of the adjustable seat to furnish every pupil with a seat adapted to his size. It is not necessary that all of the seats in a room should be adjustable but at least a fourth of them should be. This will enable all the pupils to be provided with

seats of such height that they will be comfortable and will suffer no injurious effects from improper seating arrangements.

Another modern improvement is the movable furniture. This is in the form of an adjustable chair with a drawer underneath the seat for books and other school materials and with an adjustable desk in front for study and writing. This furniture is especially desirable in that it allows for the socialization of class-room work. It enables the class to be grouped in other ways than the usual formal arrangement and in case floor space is needed for dramatization or games or group work of any kind, the seats may be moved against the wall and the floor space cleared.

There are two disadvantages of movable furniture. It is very noisy unless some provision is made for covering the floor with linoleum or by putting special tips on the chairs, and it also jeopardizes the lighting of the pupils' work if the chairs are so placed with the light that it does not fall from the left of the pupil. These disadvantages may both be overcome but they should be taken care of in case movable furniture be used.

Blackboards.—Good blackboards, preferably of natural slate, should be provided in every schoolroom. For the display of permanent work, a narrow strip of blackboard or tackboard above the

board at the front of the room should be supplied. In placing the blackboard care should be exercised to see that the light falls upon it at the proper angle. Much eye strain results from attempting to read from the blackboard in the face of improperly reflected light.

Book and supply cabinets.—Every schoolroom should be equipped with suitable book and supply cabinets as an aid to good school housekeeping. Frequently these factors are omitted either as a matter of oversight or as a matter of economy, but they have much to do with the good work of the teacher and by all means should be provided.

Apparatus and material.—So far as possible apparatus and illustrative material should be made by the pupils themselves. They are far more attractive as a rule and are more useful. Such material should not be too elaborate. If so, there is danger that the interest of the pupil will center in the apparatus rather than in the effects which it is intended to teach or illustrate. Simplicity is the keynote here.

Supplementary books.—The time has long since passed when a single text-book is sufficient in any subject. Abundant reference material should be supplied to the pupils of every grade. In the lower grades readers, nature study books, stories of biography and history should be supplied in abun-

dance. Books are the principle tools of the school and the work should not be allowed to fail through the meagerness of this provision.

Other devices.—At the present time there is great interest in the use of projection apparatus, particularly the motion-picture machine. Films are being prepared with a distinctly educational purpose without the thought of being entertaining. Since more than ninety per cent. of the pupils are visualizers it is very important that good visual methods should be used. Projection apparatus of various kinds has long been of great value in the presenting of certain subjects, particularly scientific subjects, and no doubt the motion picture will be adapted to serve a distinct aim in the field of education.

An important thing to remember in connection with the material side of school life is that it is incidental, but still of considerable importance. Just as our comfort and well-being depend upon pleasant homes which are convenient in their appointments and wholesome and sanitary in their arrangement, so in like manner does the well-being of the school depend upon its plan and material equipment. The present tendency is distinctly one of betterment in these lines and all progressive communities are improving their facilities as rapidly as their means permit.

OUTLINE OF THE CHAPTER

A. Material side not most important.
   1. Good work may be done in inadequate buildings.
   2. Buildings and equipment should not be disregarded.
B. School architecture a modern development.
   1. Classical buildings chiefly ecclesiastical.
   2. National Education Association standards.
C. Building should be adapted to its use.
   1. More than class-rooms needed.
   2. Factors of safety.
   3. Modern school requirements.
      a. Academic studies.
      b. Physical education.
      c. Practical arts.
D. Provisions of Indiana Sanitary Schoolhouse Act.
   1. Sites for school buildings.
   2. Buildings.
   3. Lighting and seating.
   4. Blackboards and cloakrooms.
   5. Water supply and drinking arrangements.
   6. Heating and ventilation.
   7. Water-closets and outhouses.
   8. Temperature, uncleanliness.
E. National Education Association building standards.
   1. Percentage of floor area.
   2. Useful as check.
F. School building as community center.
G. Furniture and equipment, and its relation to well-being of pupils.

1. Window shades.
2. Ventilation.
3. Furniture.
4. Blackboards.
5. Book and supply cabinets.
6. Apparatus and material.
7. Supplementary books.
8. Other devices.

REFERENCES

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TOPICS FOR DISCUSSION

Should a school building be entirely fire-proof? How much more does it cost than "slow-burning" construction? How wide should the corridors and stairs be? Should interior convenience be sacrificed to exterior appearance? How can a school district assure itself that it will have a desirable building? Name some of the conveniences which should be provided in a schoolhouse which are commonly omitted. Describe the best school building you have ever seen.

CHAPTER XIII

THE TEACHER'S USE OF MEASUREMENTS

A new science of education.—Within the past decade there has been developing a new science of education. This has consisted of the application of statistical methods to educational and administrative problems. The attempt to estimate educational processes quantitatively has been illuminating, and has refined the methods of administration, and to a lesser degree of teaching.

In the field of school administration the statistical method is particularly valuable. It makes possible the use of school facts as the basis of school policy. Such questions as the financial support of education, the building needs of the schools and other similar problems dealing with the material side of education can easily be reduced to a statistical basis. A careful study of the facts pertaining to such matters will reveal the action which should be taken and will prevent a school district from serious mistakes in policy.

Many school systems have established depart-

ments of research for the specific purpose of making statistical studies relative to problems of management and problems of teaching. These departments of research are in charge of trained directors who are especially prepared for their work. The studies which are being made and published by these departments of research are affording a valuable contribution to educational literature.*

The value of measurements in connection with the work of teaching is chiefly from the standpoint of educational diagnosis. The attempt to measure educational processes and results exactly and scientifically makes possible a more accurate definition of the work to be done. This is of great value since just as the successful treatment of illness depends on an accurate diagnosis, so the proper educational procedure is based on a correct estimate of the pupil's capacities, his needs and his attainments.

It has been maintained by some educational authorities that educational processes can not be measured because they are qualitative and variable, yet higher mathematics teaches us that variables can be measured and shows us the methods of doing it.

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*A good example of the kind of work here referred to is *The Building Survey of the Detroit Public Schools in 1920.* This study in a detailed manner shows the needs of the Detroit city schools for the year 1920-1921. It would make possible a building program which would exactly meet the needs of the city of Detroit.

Measurement of variables.—An illustration of the possibility of the measurement of an uncertain quantity is furnished by the actuarial tables used by life insurance companies. These tables show the number of years which any one of a given age may expect to attain, and they are so accurate that millions of dollars of capital are invested in the life insurance business on the assumption that the tables are correct. While these tables of expectancy may not inform an individual of the exact number of years he will live, they will show almost exactly the number of people per thousand who will die in any given year in any given locality without specifying who those individuals are.

Another illustration of the standardizing of measurements is furnished by the charts and tables showing the physical proportions of human beings. These tables show the correct measurements of height as related to weight and the dimensions which the other parts of the body should have in order to be of correct proportions. These tables have been derived by the measurement of a very large number of persons and striking an average of all the measurements. No one person may exactly conform to all the figures of the table, yet the table furnishes a standard or norm by which the individual may judge his amount of deviation from the standard.

The standard tests used in educational work are chiefly derived by means of averages; for example, if the average rate of oral reading of many thousands of fourth-grade children be known, it is fair to assume that this average rate is a standard of such reading. Any child who was either above or below that average might justly judge of his own performance as being either better or poorer than the average and feel that he had measured his performance in terms of a proper standard.

Method is a means.—In discussing this question of statistical method, it is important to remember that a method is a means of doing something. A consideration of method should never cause the means to be regarded as of greater importance than the end to be attained. In other words a method is not an end in itself, but only a means to an end. At times a study of methods in education has almost ignored the aims to be attained. Books have been published on educational methods without even stating the aims for which the methods were considered valid.

The chief requisite of a good method of doing anything is that it shall be both economical and effective, that is, it should be able to accomplish the result required with the least expenditure of time, labor and money. Good methods are important, therefore, in preventing failure of attainment and waste of materials and labor.

Two classes of problems.—There are two kinds of tasks for which the statistical method is valuable in education. The first is the type which may be grouped under the heading of administrative questions. These have to do with the finances of the school system, the tax rate, the preparation of the school budget, the use of approved accounting methods, providing for adequate buildings for the housing of the schools, seeing to it that these buildings are in a sanitary condition, providing a suitable schedule of salaries for teachers and other employees, the organization of the work of the schools such as the classification of pupils, the arrangement of time schedules, the grading and promotion of pupils, and the supplying of courses of study and the materials needed for teaching. All these questions as well as many others are problems of administration. They lend themselves to a factual treatment because the data concerning them is definite and may easily be collected and used as a basis for the determination of school policy.

Another set of problems for which the statistical method is valuable may be included under the head of pedagogical questions. Such questions are, finding out the ability of the pupil, determining the kind and amount of his previous training, establishing the deficiencies of the pupil in the various subjects, determining his rate of progress in a subject and

providing for satisfactory progress, and the measurement of the pupil's attainment in connection with his work. All these have to do directly with the work of instruction, and the statistical method will throw light upon these matters by furnishing the teacher with the facts upon which conclusions can be based relative to the kind of instruction needed in order to produce the educational results which are the objective of the course of study.

Examinations have not been a satisfactory measure.—The need of measuring or determining the above educational factors is not new. It has always been performed by teachers and educators and it has been performed satisfactorily as a general rule, but there has been a great deal of uncertainty in dealing with some of these matters and teachers themselves have often felt the need of more definite standards of judging. For example, the measuring of the achievement of pupils in the various subjects has been done heretofore chiefly by means of examinations. These examinations were usually set by the individual teacher and the questions were usually left to the individual teacher's judgment. This resulted in much uncertainty as to the worth of the examination and its validity to test the results of instructional work. It was very much like trying to measure cloth with an elastic yardstick. A standard of measure itself

should be as nearly definite as possible in order that it may be a true measure. The failure to have definite standards resulted in many ludicrous incidents. Monroe quotes an example* of an examination paper in geometry which was graded by more than one hundred different teachers. The resulting marks varied from twenty-nine per cent. to ninety-two per cent. and the largest number of teachers agreeing on any one mark was thirteen. While it may be claimed that such marks do not need to be absolutely accurate and that the judgment of the teacher is sufficiently accurate for the purpose of instruction and promotion, the fact remains that a nearer approach to accuracy can not be thought to be objectionable and any improvement in dealing with this question would be a real aid to the cause of education.

In this respect the new method is of value. It sets up definite scales of attainment in various subjects and rates the child on these scales in accordance with his performance. In this way it tends to create a yardstick of wood instead of one of rubber or other elastic material.

Steps in the scientific method.—The chief steps in the scientific method as outlined by H. O. Rugg†

*Referred to in Chapter XI.

†*Statistical Methods Applied to Education.*

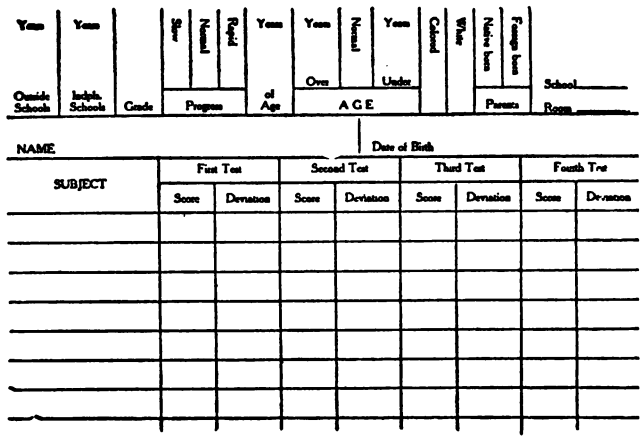
are the collection, tabulation and analysis of data. The collection of facts may be made either by personal investigation or by questionnaire. The number of facts collected should be sufficiently great to make the conclusion drawn from them justifiable and the data should be matters of fact rather than matters of opinion. Tabulation of facts consists in the arrangement of data in a form which will render it capable of analysis and this analysis consists in the classification of the data and its summarization.

It is impossible to enter into a detailed description of these steps but the following illustration clearly shows the method applied to the solution of the problem.

The problem used as an illustration of the type of statistical study which is of great value to any school system is that of the number of children in a given school system at a certain time, who have had some part of their school life in other systems.

This problem is a part of a larger study to determine the influence which this immigration into this school system has upon the facts of age and progress, and upon school attainment.

The first step in the larger study was the collection of the information needed from the children or their parents, and the school records. This information was entered by the teacher upon the card form on the opposite page.



This first record was an individual record, and was summarized by the teacher by grades, by sex, and by color. This summary was made up by sorting the cards into groups according to specific instructions and entering the numbers on the blank printed on page 194, which shows the summary from one school.

These summaries were tabulated by the Department of Research by grades, by schools, by sex and by color for the city. A part of the report showing the facts concerning the immigration into the Indianapolis school system is reprinted to show the use of statistics in bringing out the problem.

One of the facts which has much influence in the matter of rate of progress through the schools

FOR OFFICE USE

Number_____

Date Received _____

Compiled ✓

REMARKS O.K.

Indianapolis Public Schools

AGE PROGRESS TURNOVER

Sex Boy

Color White

Grade 4a Room 6

School a

Teacher M. S.

YEARS		SLOW PROGRESS									NORMAL PROGRESS									RAPID PROGRESS									TOTAL
		OVER AGE-YEARS					UNDER AGE-YEARS				OVER AGE-YEARS					UNDER AGE-YEARS				OVER AGE YEARS					UNDER AGE-YEARS				
In Outside Schools	In Indianapolis Schools	2 or more	1½	1	½	Normal Age	½	1	1½	2 or more	2 or more	1½	1	½	Normal Age	½	1	1½	2 or more	2 or more	1½	1	½	Normal Age	½	1	1½	2 or more	
0	all	2	1	2	1	1						1	3	2	3	1	1						1	1	3	1			24
1	1																												
2	1	1											3	2	1														7
3 or more	1													1										1					2
1	2												1	1	2														4
2	2	1																											1
3	2		2																										2
4 or more	2																												
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4	4 or more																												
5	4 or more																												
6	4 or more																												
7	4 or more																												
8 or more	4 or more																												
all	0																												
TOTAL		4	3	2	1	1						1	7	6	6	1	1						1	2	3	1			40

is the shifting of school population from schools outside the city to the schools of Indianapolis. This factor has never been considered in any study in Indianapolis and no comparative figures are available.

That the item of turnover is a vital factor in the administration of the schools of Indianapolis is readily seen from the fact that approximately one-third of the pupils in school have had one or more years in schools outside the city. Of the 37,668 children in school in February, 1920, 10,818 have not had all of their school training in Indianapolis.

White elementary schools.—In the elementary white schools, there were enrolled at the time of this study 28,366 children. Of these 7,638 or 26.9 per cent. had one or more years in outside schools. Table A shows that of 28,366 children enrolled, 14,218 were boys and 14,148 were girls. Of the 14,218 boys 10,274; and of the 14,148 girls, 10,354 have spent all of their school lives in the Indianapolis schools. Of the 7,638 pupils who spent some time in outside schools 701 pupils came into Indianapolis last year before March first, 2,523 had been in the Indianapolis schools one-half year but less than two years, 1,636 two years and less than three and 1,640 more than four years. Of the 1,640 who had been in the Indianapolis schools four years or more, 917 had

spent one year in outside schools: 469, two years; 189 three years; 39, four years; 26, more than four year.

Table A—Children in Elementary White Schools classified by sex and by years in Indianapolis and outside schools:

In Outside Schools Years	In Indpls. Schools Years	Total	Boys	Girls
Total		28,366	14,218	14,148
0	all	20,628	10,274	10,354
1	1	634	312	322
2	1	565	258	297
3 or more	1	1,324	674	650
1	2	388	206	182
2	2	351	177	174
3	2	306	145	161
4 or more	2	591	305	268
1	3	376	212	164
2	3	329	169	160
3	3	231	131	100
4	3	126	38	88
5 or more	3	126	60	66
1	4 or more	917	459	458
2	4 or more	469	236	233
3	4 or more	189	101	88
4	4 or more	39	28	11
5	4 or more	12	6	6
6	4 or more	5	3	2
7	4 or more	3	3	..
8 or more	4 or more	6	1	5
All	0	701	370	331

By Grades

Boys—Of the 14,218 boys enrolled, 3,944 or 27.7 per cent. had spent one or more years in outside schools. The per cent. of turnover is very small in grades 1B, 1A and 2B, and increases until it reaches a maximum of 41.47 per cent. in 5A, or 455 of the 1,097 boys enrolled in the 5A grade have spent one or more years in outside schools. In grades 6B to 8A the average per cent. of turnover is approximately 35 per cent.

The unusual per cent. in 5A is probably due to the fact that 5A grade is the minimum required by law for the granting of age and schooling certificates commonly called work permits. Children who are making slow progress and are dissatisfied with school drop out after the completion of this grade. They are, of course, not the only ones who drop out, but they are more likely to drop out than the others.

Table B classifies the white boys in elementary white schools by grades and by the facts of attendance or non-attendance in outside schools with per cents.

Table B—White boys in Indianapolis Elementary Schools classified by grades and by attendance and non-attendance upon outside schools with percentage distribution.

Grades	Total	All Time in Indpls. Schools	Some Time in Outside Schools	Percentage Distribution Indpls.	Outside
Total	14,218	10,274	3,944	72.3	27.7
1B	799	770	29	96.36	3.64
1A	1,357	1,270	87	93.6	6.4
2B	831	692	139	83.29	16.71
2A	1,165	910	255	78.12	21.88
3B	782	593	189	74.55	25.45
3A	950	705	245	74.21	25.79
4B	892	630	262	70.63	29.37
4A	1,079	696	383	64.51	35.49
5B	846	544	302	64.31	35.69
5A	1,097	642	455	58.53	41.47
6B	869	552	317	63.52	36.48
6A	804	497	307	61.82	38.18
7B	749	485	264	64.75	35.25
7A	760	467	293	61.16	38.84
8B	603	408	195	67.83	32.17
8A	635	413	222	65.1	34.9

Girls—Of the 14,148 girls enrolled, 3,794 or 26.8 per cent. have spent one or more years in outside schools. The per cent. is slightly less than that of boys and the greatest per cent. is 38.8 in the 6A grade but this is only slightly greater than 4A with 38.17 per cent.; 6B, 38.43 per cent.; 8A, 38.48 per cent.

The more even distribution of girls is no doubt due to the fact that the per cent. of slow progress among the girls is less than that among the boys, and seeming economic pressure does not affect the girls so quickly as it does the boys.

Table C classifies the girls in the white elementary schools by grades and by the facts of attend-

ance or non-attendance in outside schools showing per cents.

Table C—White girls in Indianapolis Elementary Schools classified by grades and by attendance and non-attendance upon outside schools with percentage distribution.

Grades	Total	All Time in Indpls. Schools	Some Time in Outside Schools	Percentage Distribution Indpls.	Outside
Total	14,148	10,354	3,794	73.2	26.8
1B	750	733	17	97.74	2.26
1A	1,239	1,163	76	93.87	6.13
2B	769	678	91	88.17	11.83
2A	1,180	957	223	81.11	18.89
3B	760	569	191	74.87	25.13
3A	978	726	252	74.23	25.77
4B	817	597	220	73.07	26.93
4A	1,053	661	392	61.83	38.17
5B	898	617	281	68.72	31.28
5A	991	646	345	65.19	34.81
6B	804	495	309	61.57	38.43
6A	920	563	357	61.20	38.80
7B	800	536	264	67.00	33.00
7A	812	521	291	62.93	37.07
8B	626	430	196	68.69	31.31
8A	751	462	289	61.52	38.48

By Schools

Another view of the problem may be had from Table D, which classifies the children enrolled in elementary white schools by attendance or non-attendance in outside schools and by schools, showing percentage distribution. This table shows that four schools have a turnover of over fifty per cent.

Table D—Children in Elementary White Schools, classified by schools and by attendance or non-attendance upon outside schools with percentage distribution.

1	2	3	4	5 Percentage Distribution	
			Some Years		Some Years
		In Indpls. Schools	in	In Indpls. Schools	in
School	Total	Only	Outside Schools	Only	Outside Schools
1	67	50	17	74.63	25.37
2	629	232	397	37.05	62.95
3	843	668	175	79.25	20.75
4	522	390	132	74.71	25.29
5	297	216	81	72.73	27.27
6	623	452	171	72.55	27.45
7	448	317	131	70.76	29.24
8	344	222	122	64.54	35.46
9	567	342	225	60.32	39.68
10	617	439	178	71.15	28.85
11	236	95	141	40.26	59.74
12	671	483	188	73.48	26.52
13	370	253	117	68.38	31.62
14	545	407	138	74.68	25.32
15	700	535	165	76.43	23.57
16	466	332	124	73.39	26.61
18	577	433	144	75.04	24.96
20	550	449	101	81.82	18.18
21	430	348	82	80.93	19.07
22	336	272	64	80.95	19.05
25	290	215	75	74.14	25.86
27	372	251	121	67.47	32.53
28	463	339	124	73.22	26.78
29	530	368	164	69.05	31.95
30	66	66	0	100.	....
31	424	299	125	70.52	29.48
32	501	354	147	70.6	29.4
33	622	490	132	78.78	21.22
34	353	291	62	82.16	17.84
35	543	435	108	80.11	19.89
36	626	465	161	73.95	26.05
38	302	245	57	81.	19.

39	639	489	150	76.53	23.47
41	1,108	863	245	77.89	22.11
43	466	315	151	65.45	34.55
44	566	442	124	78.10	21.90
45	582	401	181	68.91	31.09
46	469	363	106	77.40	22.60
47	654	433	221	66.22	33.78
48	148	113	35	76.35	23.65
49	709	513	186	73.43	26.57
50	649	477	172	73.51	26.49
51	1,024	730	294	71.29	28.71
52	895	686	209	76.65	23.35
53	174	118	56	67.93	32.17
54	870	675	195	77.59	22.41
55	601	463	138	77.11	22.89
56	240	173	67	72.09	27.91
57	754	532	222	70.56	29.44
58	765	604	161	78.95	21.05
59	139	73	66	52.51	47.49
60	857	639	218	75.85	24.15
61	209	174	35	83.26	16.74
62	133	109	24	81.96	18.04
66	484	396	88	81.82	18.18
67	337	218	119	64.69	35.31
69	47	47	0	100.	....
70	288	176	112	61.12	38.88
71	51	17	34	33.33	66.66
72	303	69	234	22.78	77.22
T. F. A.	50	25	25	50.	50.

The distribution of schools by per cent. of pupils who have begun their school life before entering the Indianapolis schools is shown in Table E. This table shows that five schools have a turnover of more than fifty per cent., ten of more than thirty-five per cent., and thirty-eight of more than twenty-five per cent.

In this table 15 means 15 but less than 20, 20 means 20 but less than 25, etc.

Table E—Per cent. of pupils enrolled in the Indianapolis Public Schools for white children who have begun their school life before entering the city schools—April, 1919.

Per cent. of Total Enrollment	Number of Schools
Total	61
Below 15	2
15	9
20	12
25	21
30	7
35	4
40	..
45	1
50 and above	5
Median	26.3%

This study shows the extent of "immigration" into the Indianapolis schools; the location by schools and by grades of this immigration; the relation of these facts to the age and progress of the pupils. And it points to the remedies that are needed in order to counteract the relatively large amount of shifting in school enrollment. From the standpoint of school administration and from the standpoint of the class-room teacher, such a study has great significance.

In general there are two factors which must be measured in connection with the work of teaching. First of all the training processes through which the pupils are put must be measured in order to conserve the time and effort of both the pupil and the

teacher. If these training processes can be standardized so that the achievement of the pupil can be known, it will result in great economy. In the second place the results of educational work must be measured, not absolutely, but relatively. Since definite aims are set up for achievement, it is important for the public and for educators to know whether these things are being achieved and to what extent.

It is true that these things have always been done in a general way. Usually achievement has been estimated on a percentage basis, but there has never been any common understanding as to the basis upon which the percentage is figured. For example, if a pupil receive a grade of seventy-five in arithmetic, does it mean that he has attained seventy-five per cent. of what the teacher thought he should accomplish, or seventy-five per cent. of the average attainment of the others in his class, or seventy-five per cent. of possible perfection. Unless some basis be established upon which to estimate a percentage, the percentage itself means very little.

Educational factors which are definite.—It is possible to establish a definite basis for the estimation of the pupil's attainment because many factors in the work of education are quantitative. For example, the rate of oral reading, the speed in writing, the number of errors in spelling or arithmetic, etc., in the various grades are perfectly definite

facts and if it is known what the attainment of the pupil should be in these respects, it is possible to measure his actual attainment in these lines very definitely.

A second fact which indicates the applicability of this method is the necessity of making a diagnosis of the child's present attainment and his ability in order to teach him intelligently at all. If these matters be merely assumed or left in the field of vague speculation, the instructional work will not be so effective as though the means used were directed to more definite ends. Just as the skilled physician will have a better chance for successful treatment if he make a correct diagnosis, so the teacher can instruct to better advantage if she know the child's previous attainment and his ability to advance.

Educational factors which can not be measured. —Notwithstanding the fact that many educational factors are quantitative as indicated above, we should not forget that this is not true of the whole of education. Many of the most important factors in education have to do with the training of the will of the pupil rather than his intellect. The attitude of the pupil toward life, his qualities of character, are fully as important as the development of his mental powers. The cultivation of his interests, his tastes, the development in him of high principles of honor, courage and ideals of service—these are

among the most vital outcomes of the work of education. It has been said that the most important question to be asked about a pupil is not "What can he do" but "What will he do." This indicates that education must be concerned not only with what is true, that is, with facts, but also what is right.

A further limitation upon the use of quantitative methods is that the child is not a finished product, but is in a condition of growth and development. Hence, to a certain extent the attempt to measure his status is like attempting to paint a picture with pigments which change color as they flow from the brush. Life is not static; it is fluid.

These considerations should not blind us to the part which these exact standards and measurements may play in the intellectual attainment. It should cause us to limit the application of this method to the field in which it applies rather than to attempt to make it of universal application.

How the teacher may be helped.—Statistical methods have been sufficiently developed that they have become a real help in the work of teaching. A working knowledge of these methods will be an efficient tool in the hands of the teacher. Efficient workmen should welcome any improvement in their tools. Science has contributed wonderfully in the improvement of tools and machinery. The workman who would prefer a hand drill to a pneumatic

or electric drill to-day would be regarded as inefficient, and teachers should be as ready to adopt new devices which are superior to the old.

It should be observed that this method is chiefly of value for the constructive use which may be made of it. Tests are not chiefly negative in purpose but they are for the purpose of finding out what needs to be done. Many teachers have felt that standard tests and measurements were being used chiefly by supervisors and other school officers for the purpose of uncovering defects. If the work stopped there very little would be accomplished. The greatest value of this method is its possibilities in the hands of a progressive teacher. She can use it to define her own problems more clearly and to solve them more efficiently.

Wide range of ability.—One result of intelligence tests has been to show us that there is a greater range of ability in a group of pupils than we had been accustomed to think. We have not been fair to the superior pupils, but have held them back to a greater extent than their ability would justify. Whether the intelligence tests estimate absolutely the individual intelligence or not, they are of great value in showing the extremes of ability in a given group with the result that these extremes will be given educational treatment in accordance with their needs.

The discriminating use of the tests and scales

which have been derived in the various subjects will show the progress and attainment of the pupil more definitely than heretofore. This will be an element of satisfaction to teachers, parents and pupils. Teachers have been obliged for so long to defend their judgment in marking pupils that any device which will make them more positive in their rating, will be a great gain to the cause of education.

For many years school statistics have shown a high percentage of retardation. Through the use of the statistical method, studies are now being made comparing the age and the grade and the progress of the pupils in such a way that the real facts of retardation appear. The remedies can thus be applied with comparative ease and the resultant saving in time and money will be enormous. In this one department alone the statistical method has proved of untold value.

The literature on this subject is increasing rapidly and no teacher should be unfamiliar with it. It is a part of the modern teacher's stock in trade and the need of a knowledge of these methods and skill in their use, will be of increasing importance as the years go by.

OUTLINE OF THE CHAPTER

A. New science of education.
   1. Statistical method.
   2. Measurement of variables.

B. Description of statistical method.

1. Method is a means of doing something.
   a. It is not an end in itself.
   b. Requisite of a good method.
2. Two kinds of educational tasks for which the statistical method is valuable.
   a. Administrative questions.
      i. Finances.
      ii. Buildings.
      iii. Salaries.
      iv. Organization of schools.
   b. Teaching questions.
      i. Ability of pupil.
      ii. Previous training.
      iii. Progress.
      iv. Attainment.
3. Customary method of measuring achievement.
   a. Examinations.
      i. Questions not evaluated.
4. Value of new method.
   a. Standards more definite.
5. Chief steps in the scientific method.
   a. Collection of data.
   b. Tabulation of data.
   c. Analysis of data.
6. Illustration of above steps.

C. Why statistical method applies to education.
1. Processes must be measured.
2. Results must be measured.
3. Many educational factors are quantitative.
   a. Rate of reading, writing.
   b. Number of errors in spelling, arithmetic.
4. Necessity of diagnosis.

a. Child's status.
b. His ability to advance.

5. Not all of education is quantitative.
   a. Training the will.
   b. What can he do *vs.* what will he do.
   c. Attitude toward life.
   d. Child not a finished product.

D. Uses of statistical method by teachers.
   1. Working knowledge of this method as a tool.
      a. Constructive use, not negative.
   2. Intelligence tests will show extremes of ability.
      a. Provision for superior pupils.
   3. Tests and scales in various subjects will show progress more definitely.

REFERENCES

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Starch—*Educational Measurements.*

Terman—*Measurement of Intelligence.*

TOPICS FOR DISCUSSION

How is it possible to measure a variable quantity? How does a standard test differ from an ordinary test? How has the scale for measuring handwriting been derived? Show by an example the use of standard tests in teaching. How are diagnostic tests useful? Is the statistical method more useful in administrative or teaching problems? Name several factors in education which can not be measured.

CHAPTER XIV

SPECIALIZATION IN EDUCATION

The industrial revolution.—The present age has been called the age of specialization because of the extent to which the occupations of mankind have been divided and subdivided into a large number of separate departments and processes. The extent to which this has taken place is remarkable. In the shoe-making industry the making of a shoe is divided into more than seventy-five processes and requires that many men. Formerly a shoe was made by one man, a shoemaker. This change has been equally marked in other occupations.

The change from a simple primitive type of society to the present complex, highly organized type has been called the industrial revolution. It might perhaps better be termed "evolution" since the change was gradual. It is difficult to fix definite dates for the beginning and ending of this development and it is unnecessary to do so. It is sufficient to know that it dates from the beginning of the factory system in England about 1770.

Growth of scientific knowledge.—It is interesting to examine the causes of this change. The results have been so tremendous and the effects on society so radical that the cause is a matter of concern to the world. The principal force which brought all these changes about was the growth of scientific knowledge and the application of science to industry and to life. If the present condition of living be contrasted with that of one hundred years ago, we are struck by the presence in our lives to-day of many inventions which contribute to our comfort and convenience. For example, modes of transportation have become so facilitated that distance is a matter of small concern for the transporting either of persons or of goods. A whole book could be written on the benefits to our day and age accruing from improved methods of transportation. It is far easier and cheaper and more comfortable to travel one thousand miles to-day than it was to travel one hundred in the times of our grandfathers.

The invention of the telephone and telegraph have so improved the means of communication that it is literally true that the world to-day is one big community. During the recent World War the critical and important events were known in America a few minutes after they happened thousands of miles away. The great disaster in Halifax Harbor a few years ago, was made known throughout the

world so promptly that assistance was sent in from other communities with a degree of promptness which prevented much suffering.

Inventions in connection with printing have made possible the dissemination of information of all kinds on a scale hitherto undreamed of. To-day it is possible to attend a great meeting and hear an inspiring address and on leaving the hall be met at the door by a newsboy with a paper containing a full account of the proceedings and the address one has just heard. Such an incident would excite no surprise in a modern audience.

The means of lighting our houses, stores and streets have been so improved that it is now possible to secure any degree of illumination desired by pressing a button. The same is true of other conveniences, such as water and heat. These are now piped into our buildings and are supplied with a minimum of concern on the part of the user.

Inventions for the performance of mechanical operations are countless. Not long ago I saw a machine for the digging of ditches at work. It excavated a ditch of the required width and depth and filled in the earth afterward so that the entire operation of excavating and filling was performed while the machine was passing slowly over the ground. With hand labor such work would be onerous and would require many times the time and

effort used by the machine. Another simple illustration is the electric fan. In the olden days it required the work of several people to operate fans for the comfort of those who were able to employ such help. To-day the electric fan may be placed anywhere and operated swiftly and silently by mechanical power.

It is unnecessary to multiply examples. On every side we are surrounded by conveniences which have become essential to our comfort. They enter into our lives and become a part of the commonplace of our existence. We are enabled to devote much time and thought to other matters since these comforts and conveniences are provided with a minimum of attention on our part.

Change to machine labor.—The substitution of machine labor for hand labor has indeed worked a revolution in modern life. All kinds of mechanical processes are now efficient to a degree hitherto unknown. This is particularly true in the productive industries. Take such an example as the manufacture of nails. In primitive times nails were hammered out by hand in a laborious way; to-day automatic machines produce them by the thousands, all of uniform shape and size. Not long ago I visited a knitting factory. I saw automatic machines knitting garments continuously, day and night, the only thing necessary being a spool of the proper material

supplied as the machine needed it. The completed garment came out of a funnel on the front of the machine. Such a process seems like a mechanical miracle. The increased production which is possible by means of machinery is so great that it is almost incalculable, and the consequent saving of human labor enables one man to accomplish as much as ten could before.

Development of power machinery.—With the development of machinery came the necessity for power to run the machines. The discovery of steam and the application of it to mechanics furnished the needed power. To-day by means of steam and electricity and compressed air, the largest machines are operated with the utmost ease. An example of modern mechanical efficiency is furnished by the building of the Panama Canal. Many years ago when the first attempts were made to dig the canal, hand labor played a much more important part in the work of the world than to-day. At the present time by means of the steam shovel and other modern appliances, the tremendous engineering work of digging this canal was completed in a comparatively brief time. It should not be overlooked that the human element played an important part in this enterprise, as indeed it does in all mechanical work, but the perfection of machinery made possible an achievement which with mere hand labor would doubtless have been impossible.

Increase in number of occupations.—Let us consider a few further effects on present-day life of the industrial revolution briefly sketched above. One of the striking facts is the increased number of occupations. The present classification of occupations according to the United States Census shows more than seventeen thousand different kinds of work. No doubt each succeeding census will show a still greater number. The Rotary Clubs of the United States are organized on the basis of one representative from each kind of business or pursuit. The club of which I am a member has about four hundred members and these are not competitors of one another in any way. This variety of occupations makes life more complex and makes it more difficult for any one to be well informed about the details of occupations other than his own. Have you not had the experience of visiting some business or factory and being surprised to find the high state of development of the work, its efficiency, its complexity, and the perfection of the various processes; and have you not felt that people in general should know more about such work in order to realize how the necessities of life are prepared?

Change from home to factory.—A second effect of the industrial revolution was the changing of productive industry from the home to the factory. Under primitive conditions the home produced and manufactured practically everything it consumed,

even to the spinning of thread and the weaving of cloth and the making of clothes. Under these conditions the home was a complete industrial and social unit. To-day the processes necessary for comfortable home life are parcelled out among hundreds of industries, and the home is dependent on the satisfactory operation of these many industries for its comfort and well-being. This change necessitated the workers going from the home to the factory. This produced large groups or communities of factory workers and changed the form of life to a different type of organization. It also changed the conditions necessary for the learning of a given trade or occupation. Under the old apprenticeship system it was possible for a boy to learn an entire occupation and become himself a master of all the processes of his trade. Under modern conditions this is no longer possible. The beginner usually has a part to master, only a single process or a small subdivision of the entire task.

Division of labor.—The greatest change brought about by the industrial revolution was the division of labor, that is, the performance of a single operation by one person, instead of all the operations involved in a single productive enterprise. This made production a collective, not an individual affair. It required the cooperation of many people in the production of a single article. It has made

society an organism, the various parts of which must cooperate for the welfare of the whole. It is like the human body which possesses organs with differentiated functions. The welfare and the efficiency of the human being depend upon the proper performance of the respective functions by the various organs of the body. Division of labor brought about the plan of production by piece work. This means the basing of wages upon the number of single pieces of a given kind which one operator can produce. It tends to the development of a great skill in the one operation but to less knowledge of the entire business and therefore less interest in it. The division of labor is undoubtedly good on the material side of life, but it may be questioned whether the same is true of the human side.

Need of capital.—This industrial revolution also made capital more necessary than ever before. In order to provide the factories and the machines necessary for production under machine conditions, it became necessary to have large amounts of capital. The need of capital has brought about the science of finance which has developed a system of credit which enables society to capitalize its possibilities as well as its past performances. Without the use of credit modern business would be impossible as there is not enough cash in the world to perform the business of the world.

A further effect of the industrial revolution has been the increase of comfort already alluded to. It is literally true that the luxuries of yesterday have become the necessities of to-day. The entire scale of living has advanced for all civilized people so that the standards of comfort to-day are far above those of yesterday.

Increase in wealth.—The industrial revolution has added greatly to the wealth of the world. There is more for every one to-day than ever before in the world's history. This is a great benefit but it has a danger. It tends to emphasize the material side of life and to cause men to think that their success and happiness reside in material possessions. These material comforts are greatly to be desired but they must be kept in their proper place in life and not become the end and aim of all existence.

Class divisions.—A further tendency in modern life is toward stratification and class divisions. The wage earner often feels that his interests are distinct from those of other occupations. The producer sometimes feels that he is entitled to special consideration. The lack of understanding of the conditions in the various occupations produces a lack of sympathy with the workers in the various lines. This tendency is very much less marked in America than in other countries, but it is present to a greater extent than is desirable. America has the tremen-

dous advantage of freedom of opportunity. Any person in any line of work may advance in that line to the top or he may change to any other occupation without interference. The leaders in commerce and industry in our country to-day are for the most part men who have started at the bottom and who have risen because of ability and application. This keeps the lines of progress open so that no man is arbitrarily denied the right to any activity which he may desire to follow and to any attainment of which he may be capable.

Effect on education.—What has been the effect of the industrial revolution upon education? In the first place it has changed the aim of education. The earlier purpose was the acquirement of knowledge, the equipping of the individual with "learning" in the academic sense, but the change in the character of society has brought about of necessity an aim in education no less comprehensive than that of fitting the individual for life. This preparation for life is a very complex aim because life itself is complex, but nothing less than this will satisfy the purposes of modern education.

Not only is the aim of education changed, but the kind of training which must be given to accomplish this aim. Modern education recognizes the necessity for self-activity on the part of the learner. He must learn to do by doing; he must be educated

by participating in the very activities which he is to master. This principle looks to the self-development of the pupil rather than superimposition of knowledge from without.

Education has also become socialized. The modern course of study contains representative elements of society as a whole. All the typical departments of modern life are represented in the course of study.

Need of cooperation.—Modern education develops a spirit of team work or cooperation. It teaches the pupil that he lives in a world, the members of which are mutually interdependent. This interdependence necessitates the development of certain traits of character on the part of the individual. He must play the game fairly with his fellows, he must act well his part and be faithful to his trust because his failure to do so will not only jeopardize his own interests but will make impossible the performance of the cooperative task in which he plays an important part. This quality of character is more important to-day than ever before in the world's history. It is much easier to take advantage of some one at long range, to fail him in some service when that service is impersonal and there will be no direct retribution if it be not performed. The cooperation necessary in modern society demands a strength of character greater than that needed under more individualistic conditions.

Specialization in teaching.—Not only have the aim and the kind of education changed, but the way in which the labor of teaching is done has also changed. Teachers have become specialists and no longer expect to cover a large number of fields of education. The departmental method is one example of this. Instead of teaching all the subjects of a given grade a teacher will now teach one subject in one or more grades, such as history or arithmetic. This makes the work of teaching a collective enterprise. It lessens the responsibility of the teacher in one sense but increases it in another sense.

This specialization makes possible a greater skill and proficiency in teaching. It becomes relatively easier to master the technique of a single subject. It creates a danger of course that the teacher will be more of an artisan than artist, but this danger can be guarded against if the teacher be aware of it. It also creates the same tendency toward class interests and class division as in business and industry. The class-room teacher is apt to feel that the principal or supervisor does not understand or sympathize with her particular problems. This tendency to stratification must be carefully guarded against. It would be fatal to the true work of education were it ever to become prevalent.

The work of organization.—Another marked tendency in modern education is to emphasize the

side of organization. The problem of coordinating the efforts of many departments and many groups of specialists has necessitated an amount of attention to organization which never before existed. Many of the modern innovations in education such as the platoon plan and the junior high school plan are chiefly plans of this kind. Such work is necessary. There must be a certain amount of system, but the danger is here, as elsewhere, that organization shall become an end in itself, and that the mere machinery shall be elevated to the chief desideratum and that the purpose for which the system exists shall be in the background. This danger was perceived by one of America's foremost philosophers many years ago. In his essay on Education, Ralph Waldo Emerson sets forth this danger to education:

"A rule is so easy that it does not need a man to apply it; an automaton, a machine, can be made to keep a school so. It facilitates labor and thought so much that there is always the temptation in large schools to omit the endless task of meeting the wants of each single mind, and to govern by steam. But it is at frightful cost. Our modes of education aim to expedite, to save labor; to do for masses what cannot be done for masses, what must be done reverently, one by one: say rather, the whole world is needed for the tuition of each pupil. The advantages of this system of emulation and display are so

prompt and obvious, it is such a time-saver, it is so energetic on slow and on bad natures, and is of so easy application, needing no sage or poet, but any tutor or schoolmaster in his first term can apply it,—that it is not strange that this calomel of culture should be a popular medicine. On the other hand, total abstinence from this drug, and the adoption of simple discipline and the following of nature, involves at once immense claims on the time, the thoughts, on the life of the teacher. It requires time, use, insight, event, all the great lessons and assistances of God; and only to think of using it implies character and profoundness; to enter on this course of discipline is to be good and great."

Needed adjustments of education.—What adjustments of education can be made to meet the conditions of the age of specialization? In the first place it is necessary to realize that the principle of division of labor has come to stay. The world will not return to its former ways. History shows us that society evolves, that it develops ever to new stages, but that it does not return to its former modes of living and thought. Those who lament the good old days doubtless exaggerate their beneficence and overlook the fact that the world is constantly becoming better and that the cause of progress will not be subserved by turning the march of civilization backward.

Advantages of specialization.—There are undoubted advantages to be gained from specialization of effort in teaching. In the first place a greater expertness and proficiency are possible. One can have a sense of mastery in knowing thoroughly his particular field. He may develop a great skill in teaching because he is not obliged to disseminate his efforts too widely. Undoubtedly the results obtained in the teaching of the various subjects are superior under the departmental plan and those who have tried it do not often willingly return to the older method. The teacher's preparation can be more thorough if she focuses her efforts upon a particular field and this preparation can be obtained in less time than would be possible if several fields had to be mastered.

Disadvantages of specialization.—Along with these advantages there are several disadvantages of specialization in teaching. One of these is that the work tends to become more impersonal. The teacher's interest is apt to be more in the subject-matter taught than in the pupil who is being taught. There is also slightly less responsibility for the product if the teacher feels responsibility only for a pupil's knowledge of history; she may leave out of account some of the elements of judgment and mental attitude which are the outcomes of the work of education.

Furthermore the same danger of a lack of full confidence in one's coworkers obtains in this field as in the other occupations. Teachers often feel that the other teachers who have had to do with the training of a given pupil have not been efficient or entirely faithful. This tendency to a lack of confidence and a sympathetic appreciation of one another's difficulties is the danger which exists in all cooperative enterprises. Furthermore, there is the danger that too much emphasis will be placed on mere technique and the acquisition of knowledge. This should always be subordinated to the true aims of education.

There is also the danger that teachers may lose a full realization of accomplishment in connection with their work under the plan of division of labor. It becomes more difficult to point to the attainment of any pupil as the result of one's own efforts. This detracts somewhat from one's satisfaction with his work and lessens the reward that he obtains from this source.

Means of adjustment.—The means of meeting these difficulties are first of all to recognize the elements of the problem, to realize the difficulties and dangers and to make a determined effort to overcome them. This will not be accomplished by the creation of more organization and more machinery, but rather by increasing the human elements

and the human factors which we bring to bear upon our work. This can be done by taking more interest in the personal welfare of our pupils, in being acquainted with their parents and their home conditions and having a genuine interest in their well-being and their success as individuals. Also a definite effort should be made to cultivate confidence in one's associates and a belief that they are contributing their full share to the common enterprise and that the work will not fail through a lack of effort on their part. Only so can the responsibilities of an interdependent society be met and only so can the kind of civilization which we are trying to carry on be advanced to a higher plane and the cause of progress thus be subserved.

OUTLINE OF THE CHAPTER

A. The industrial revolution.
   1. Meaning of the term.
      a. Change from simple, primitive type of society, to complex, highly organized type.
      b. Might better be termed evolution.
      c. In general, it dates from the beginning of the factory system in England.
   2. Chief cause.
      a. Growth of scientific knowledge.
      b. Application of science to industry and to life.

i. Inventions.
ii. Extent to which we are dependent on modern conveniences.
iii. The marvel of yesterday is the commonplace of to-day.

3. Principal characteristics.
   a. Substitution of machine labor for hand labor.
   b. Substituting steam for man power.
4. Effect on present-day life.
   a. Increased number of occupations.
   b. Moved productive industry from home to factory.
   c. Division of labor.
      i. Piece work.
      ii. Collective not individual.
      iii. More skill, less knowledge.
      iv. Good on material side, bad on human side.
   d. Made capital necessary.
      i. Development of credit.
   e. Increased comforts.
      i. Luxuries of yesterday necessities of to-day.
   f. Added to wealth of world.
      i. Emphasizes material side of life.
   g. Tendency to stratification and class divisions.

B. Effects of industrial revolution on education.
   1. Changed aim of education.
   2. Need for different kind of education.

a. Self-activity.
b. Socialization.
c. Team work.
d. Character.

3. Caused division of labor in teaching.
   a. Collective not individual.
   b. Lessening of responsibility.
   c. Easier to prepare.
   d. Emphasis on skill, technique.
   e. Class interests.
4. Emphasized organization side.
   a. Need of coordination.
   b. Junior high school plan.
   c. Platoon plan.
   d. Put "system" into school system.
      i. Quotation from Emerson.

C. Adjustment of education to principle of specialization.
   1. World will not return to former ways.
      a. History shows that society evolves, it develops to new stages but does not return to former ones.
      b. Those who lament "good old days" doubtless exaggerate their goodness.
   2. Advantages of specialization in teaching.
      a. Greater productiveness.
      b. Greater proficiency.
         i. Sense of mastery.
      c. Simple operations.
      d. Ease of preparation.
   3. Disadvantages.
      a. Impersonality.

b. Less responsibility for product.
c. Less sympathy with associates.
d. Emphasis on technique.
e. Less sense of accomplishment.

4. Means of adjustment.
a. Recognize problem.
b. More machinery not the solution.
c. Increase human elements.
d. Cultivate confidence in associates.

REFERENCE

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TOPICS FOR DISCUSSION

Do modern conveniences contribute to our comfort? Does the use of machines in productive industry lessen the need for human labor? Name several industries which were formerly carried on in the home which are now confined entirely to factories. How has education changed on account of complexity of modern life? Is the departmental plan of teaching superior to the former plan? What is the advantage of the platoon plan? Is the modern complex life more interesting than the simple life? Is it easier?

CHAPTER XV

EDUCATION AND THE NATION

"Education is the most sacred concern, indeed the only hope of a nation."—*John Galsworthy.*

Change in the purpose of education.—One of the most striking changes which has taken place in American life is the change in the purpose of education. It has taken place so gradually that it is difficult to realize until we compare the present purpose with that which existed at the very beginning of our life as a nation. On the beautiful Johnstone Gateway which opens upon the Harvard yard there is an inscription referring to the purpose of the founding of Harvard College in 1636. This inscription states as the purpose of the founding of the college "To advance learning and perpetuate it to posterity dreading to leave an illiterate ministry to the churches when our present ministers shall lie in the dust." This indicates that the chief object was the promotion of scholarship for the training of the clergy. There was no thought that such education should be universal nor that it should be practical

in the sense of preparing for the ordinary duties of life.

Present purpose.—Present-day education has added to the ideal of learning, the idea of training, that is, the development of certain habits and skills which shall be serviceable to the individual and to society. It furthermore contemplates that education shall be universal and that it shall fit the individual for effective social participation or service. Because of its breadth and its universality, the carrying out of this ideal lies at the very foundation of life in a democracy.

The thought that education should fit the youth for life is not to be taken in a narrow or utilitarian sense merely. Fitting for life involves not merely the training for practical affairs but also for the enjoyment of leisure, good will and social service. This purpose is so fundamental and so far-reaching that the schools alone can not fully accomplish it. The other agencies of American life must participate in the task; namely, the home, the church, the press and the government.

A necessary part of this training will be the transmission to the child of the past accomplishment of the race so that the civilization of the future may begin where our fathers left off. This function of transmitting to the oncoming generation the intellectual inheritance of the race, is one of its important duties.

Education as a conserving factor.—Education has a still further purpose as a preventive and constructive factor in society. By means of it the civilization of the future should avoid many of the mistakes of the past and should profit by the race experience.

The principle of local control.—This work of education in America has always been a matter of local organization and control. When the United States Constitution was formed and adopted, it left to the local governments all the powers not specifically assigned to the federal government. One of the powers so left was the control of education. As a result this principle of local control has been thoroughly applied in American life.

As a result of this plan a great inequality of educational opportunity has developed and wide differences in the educational results obtained by the various states and local districts. Such differences would be inevitable under a purely local system.

Results of education as shown by war.—The facts of the Selective Service Draft showed that some of the needs of the nation were not being fully met by the present educational system. Chief among these were the subjects of physical education and universal literacy. Physical examinations showed that almost fifty per cent. of the men between the

ages of eighteen and thirty-five were sufficiently deficient to unfit them for military service. These deficiencies were very largely remediable; probably ninety per cent. of all physical defects might be removed by proper training and health supervision.

After the statistics of the draft were compiled, it was found that the defects among school children were about the same in amount and kind as among the men of draft age. This is significant because it points to the fact that unless these defects be removed during childhood they will persist into manhood and incapacitate the individual for certain kinds of service. This fact is also interesting because the draft figures can be used as a rough diagnosis of the kinds of defects to be met with among children.

The amount of illiteracy discovered among the men who were drafted for military service was a surprise to every one. Since public education is free in America and since it is practically universal, students of education were inclined to the belief that the facilities offered were being utilized by those for whom they were intended. But it is now clear that the mere offering of an educational opportunity is not sufficient to insure that all children of school age will avail themselves of it. Nor do the compulsory attendance laws entirely correct the difficulty. These laws are not enforced to a suffi-

cient extent to accomplish the desired result, and still further effort must be made if education in America is to become in fact universal.

The two qualities mentioned—physical efficiency and the ability to read and write—are not to be thought of as desirable merely from the standpoint of military service, and the reference to the Selective Service Draft should not be understood as implying this. The chief need of these qualities is for the purposes of citizenship in times of peace and they are necessary because without them no person is capable of rendering the best services to society.

Achievements of American education.—Consideration of the shortcomings in American education outlined above should not obscure the many splendid accomplishments of education which were also revealed in the national emergency incident to the World War. One of the most significant occurrences was the ready acceptance of the Selective Service Draft on the part of the entire citizenship. At the beginning of the war it was freely predicted that a universal draft could not be carried out without draft riots and other indications of resentment, but when the law was finally passed and put into effect, it was generally recognized by the country that the plan was necessary and that it was fair and wise. Most people felt that they preferred to have the government select those who were needed for the

various branches of the service rather than leave it to the haphazard decision of a volunteer system. The facility with which the draft law operated was an evidence of the general intelligence and the high patriotic spirit of our people, both of which are partly the product of public education.

Another fact attested to by army officers and government officials was that the American soldiers were highly efficient. In spite of their lack of long continued, military training they quickly adapted themselves to the conditions of military life and performed with intelligence and despatch the duties assigned them. One of the chief characteristics exhibited by the American soldier was his initiative and his willingness to accept responsibility. It is clear that the American system of education contributes to both these qualities.

The splendid qualities of the American soldier were exhibited by many Americans of foreign birth who were the products of the American public school. Such soldiers were thoroughly imbued with American ideals and principles and they served as loyally and as enthusiastically as could be desired. This is the best possible evidence that public education in America is producing a high type of citizenship and that the free institutions of America which are founded upon that citizenship are upon a firm foundation.

The characteristics of American education shown by the facts above outlined, are as a whole encouraging rather than otherwise. They show that the most fundamental needs of the nation are being met, that the training is essentially sound and that it merely needs to be more universally applied than in the past. It indicates that the American system of education does not need to copy the ideals or methods of foreign countries but that the self-development of our own culture will suffice for our national needs.

The principle of self-activity in education.— An important idea, relatively new in our education, is that of self-development through self-activity. The idea itself is not very new but the application of it to educational processes is comparatively recent.

In order to furnish the pupil with an opportunity for education by participation, many forms of student activity have been provided in the modern school. These have frequently been misunderstood by the public and have been regarded as mere play or entertainment, whereas they have furnished the training ground for the development of skill and qualities of character by actual experience. Most of the so-called fads which are so frequently inveighed against by newspaper paragraphers and well-meaning social reformers are in reality agen-

cies of this character. The abolishing of such forms of training would throw the schools back to the old idea that the pupil was merely receptive and that his chief business was to store his mind with facts; but experience has proved that undigested and unrelated facts do not constitute an education and that they do not function in actual life. The reaction of the pupil upon the facts which he studies and the application which he makes of them is quite as important, so far as his education is concerned, as the facts themselves. This is so well understood among educators that the desirability of self-development through self-activity is no longer a debatable question. It should be as freely accepted by the general public.

In connection with this principle of education by participation it should be remembered that the school is not the only educational agency. The activity of the child in the home, on the street, in the store, and on the playground furnish him much of the experience out of which his development comes; and these factors are of great importance in the final result. Society should concern itself with the influences which have a bearing on child life and should not relegate to the school the entire task of education, although the school will probably always be the chief agent in formal instruction.

The financial support of education.—A careful

study of the conditions surrounding American education at the present time indicates that one of the chief reasons for the ineffectiveness of present educational effort is that public education has not had a sufficiently liberal financial support. It is unnecessary to recount the facts bearing out this statement such as low salaries for teachers, inadequate housing facilities, unsanitary and uncomfortable rooms and buildings, etc. These conditions are very general and are to a great extent ignored.

A comparison of the amount of money spent for public education and for other kinds of service, reveals that many of the luxuries of life are provided at the expense of the necessities. For instance, more money is spent for tobacco every year in the United States than for all public education of every kind. Until the public realizes such facts and changes its practise accordingly, American education will be greatly handicapped for lack of adequate means.

There is a very practical argument for liberal appropriations for education. Although the fact may not be commonly understood, there is a direct relation between education and national wealth. Many of the factors which determine the wealth of a country are fixed and can not be changed, but the factor of training or education is a variable and is within the control of the people. It is almost liter-

ally true that the wealth of a nation will be in direct proportion to the amount which it expends upon training and education. This is true, of course, only in case the money so spent be used judiciously and in such a way as to obtain value received for every dollar expended.

Education must foster the ideal.—Of course the placing of the need for education upon a material basis alone is a false or partial view. Education must minister to the spiritual needs of life as well as to the material. Unless the ultimate values of life are fostered, education fails of its true function. Such values are essentially idealistic or spiritual, and yet they are the real needs and aim of life itself. Such ideals are progress, justice, integrity and the advancement of human welfare. These, as well as material ends, must be fostered by education.

The necessity of holding in view the cultural aims of education should not blind us to the need for technical and economic efficiency as well. The recent introduction of vocational education into the American public schools has provided for an element of training which has long been greatly needed, but this training need not crowd out altogether the older ideals of liberal culture. It is perfectly possible that both purposes shall be subserved by a well rounded scheme of education. To argue the relative merits of culture and technical efficiency

is like arguing the relative merits of seeing and hearing, both are desirable and it is not necessary to abandon either practise in order to carry on the other. So in education both these purposes must be attained.

Means of securing national aims in education. —The chief difficulty arises when we consider the means which should be used in order to obtain these results. The customary policy of exclusive local control of education has two serious defects: namely, a lack of sufficient funds in many cases to carry on an adequate educational system and the contentment with lower standards of scholarship than would be desirable. Recently there has been a great deal of discussion of the possibility of removing both these defects by creating a federal department of education with a secretary in the president's cabinet and with a federal appropriation to aid the various localities in certain phases of their work. This plan would undoubtedly assist backward localities in raising their standards, but it would also tend to cause greater dependence upon outside sources and less self-help. Popular education must always be self-developed. It can never be imposed and in the long run the education of the nation will not advance beyond the standards which the people themselves are able and willing to set up.

A national department of education might perform two valuable services for American education. It might furnish statistical and other information relating to educational questions. At the present time a school teacher or school district wishing to ascertain school facts as the basis of the solution of a problem in educational administration, must collect those facts at first hand. Thousands of questionnaires are sent out every day seeking information on school subjects, in many cases duplicating material already collected and requiring a great deal of time and effort on the part of school officials. If such information were available in a national department it would be a great economy of time and effort and a real assistance to school activities.

The second function which a national bureau could perform would be the setting up of standards of achievement in various lines of educational endeavor so that the various localities could compare their own practises with such standards for purposes of improvement. These standards could cover such matters as the materials of the course of study, the apparatus and devices used in the schoolroom, the construction and equipment of school buildings and the financial support devoted to the various departments of school organization. To some extent the work here outlined is already

being done, but the resources of the present bureau of education are too limited to enable it to be of maximum service.

The principle of local control has this in its favor—it necessitates the educating of the people to a point of realizing their needs and making the maximum effort to supply those needs themselves. This is the method of democracy and will probably never be superseded in America.

The teacher shortage.—Another essential in obtaining suitable results in education is an adequate supply of properly trained teachers. For several years there have not been enough teachers to supply the needs of all schools. This has doubtless been due to the increasing difficulty of entering the profession on account of higher requirements and to the low salaries in comparison with other occupations. The latter cause is being removed gradually and teachers' salaries are becoming more nearly adequate than ever before.

The facilities for the training of teachers differ in the various states. For the most part reliance is placed upon normal schools supported and managed by the respective state governments. In most cases these institutions are supplemented by private normal schools and by the college and university departments of education.

Greater attention should be paid to the prepara-

tion of teachers for the rural schools. At the present time the rural schools receive teachers with the minimum amount of training and experience. This creates a condition very unfavorable to rural education and until this problem is solved the educational opportunity of the country boy or girl will not be on a par with that of the city pupil.

In the country as a whole the qualifications of teachers are higher than ever before and the teaching profession is rapidly reaching a plane of first-class professional standards.

Need of attention to national program of education.—All the problems outlined above and many others must be solved before public education in America will be upon a basis commensurate with the needs of the nation. This entire problem must be attacked in a vigorous fashion by the leaders of American thought and a determined stand made for the rights of the American child. A program of education will not accomplish itself. It is a matter of vital concern to the nation, for the national welfare can not be cared for without an adequate national educational program.

The teacher's responsibility.—What is the teacher's part in this important work? A teacher has a responsibility as a leader of thought in her community. She can acquaint the parents and patrons with the present trend of educational devel-

opment and with the needs of the schools of to-day. No service is more important than this. The quality of the schools depends on the willingness of the people to furnish the necessary means of support. This will be forthcoming if the people are brought to a full realization of the indispensable character of free, popular education. Educators should not be apologetic nor short-sighted in their advocacy of progressive school measures. To do so would be to fall short of the high requirements of their calling. The American people have always believed in public education. That belief has never wavered but it must be founded upon a knowledge of school facts and it is the duty and privilege of educators to supply such information.

OUTLINE OF THE CHAPTER

A. Change in the purpose of education.
   1. Colonial aims.
   2. Present-day aims.
      a. Fitting for life.
      b. Transmitting the race inheritance.
      c. As a constructive factor.

B. Principle of local control.
   1. Inequality of educational opportunity.

C. Results of education as shown by war.
   1. Physical defects.
   2. Illiteracy.
   3. Good citizenship.
   4. Individuality and initiative.

D. Principle of self-activity.
   1. Student organizations.
   2. Other agencies.
E. Financial support of education.
   1. Evidence of need.
   2. Comparison with expense for other purposes.
   3. Relationship to national wealth.
F. Proposed national department of education.
   1. Need of local self-dependence.
   2. Valuable as a statistical bureau.
   3. Valuable as a standardizing agency.
G. The teacher shortage.
   1. Due to higher requirements and low salaries.
   2. Conditions unfavorable to rural schools.
H. The teacher's responsibility.

TOPICS FOR DISCUSSION

Why is education a concern of the nation as well as of the locality? What are the present defects in education from the national point of view? Can educational opportunity be equal if one school district levies fifty cents per pupil and another levies twenty dollars? How can the nation promote an adequate educational program? Is a man who can not read or write as good a citizen as he would be if he could read and write? Why? What is the total amount spent in the United States in one year for public education? How does this compare with the amount spent for various luxuries?

THE END